University of Alberta

The Push and Pull of Entrepreneurial Careers: Reflections on Entrepreneurial Self-Efficacy

by

Dianna Marie Dempsey

A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Strategic Management and Organization

Faculty of Business

Spring 2014
Edmonton, Alberta

DEDICATION

To my husband Jason, for his unconditional love and support.

To my parents Sheila and David, for their enduring belief that I could do anything that I set my mind to.

ABSTRACT

Defined as one's confidence in their ability to successfully perform entrepreneurial roles and tasks, the construct of entrepreneurial self-efficacy (ESE) is widely viewed as a key cognitive mechanism for explaining entrepreneurial activity. Despite its growing prominence, however, important gaps in our understanding of ESE exist.

The purpose of the first study was to investigate whether the four major factors known to contribute to self-efficacy can help account for observed gender differences in ESE. I find that the significantly lower ESE of women studied can be attributed to their lower level of prior entrepreneurial experience (enactive mastery), their lower level of positive and negative affect towards entrepreneurship (physiological arousal), and their higher likelihood of receiving failure feedback from an opportunity evaluation task (verbal persuasion).

My second study examines the mechanisms through which high performance work systems (HPWS) may aid in the formation of ESE in two stages. I first make the link between employee perceptions of their HPWS and their engagement in creative and adaptable behaviours. I find that employees' perception of their HPWS encourages perceptions of creative but not adaptable contributions. Next, I trace a second order effect of the HPWS on the development of ESE in employees. I find that HPWS influence the development of ESE indirectly through the experience afforded by creative contributions.

Finally, my third study builds off conceptualizations of 'approach' vs. 'avoidance', in order to explore how the presence of ESE among employed

individuals translates into an intentionality to pursue an entrepreneurial career. I combine entrepreneurial intentions (EI) with staying intentions (SI), and through the use of cluster analysis create four categories of entrepreneurial intentionality: incubating entrepreneur, imminent entrepreneur, employed stayer, and employed leaver. My analysis shows that combining EI and SI into profiles offers important insights into the effects of gender and ESE on career intentionality to become an entrepreneur that are missed when these outcomes are examined separately.

My overall findings from the three studies contribute to a more nuanced view of ESE including how it develops and how it may impact decisions to undertake entrepreneurial activities in both intrapreneurial and entrepreneurial settings over the course of an individual's career.

ACKNOWLEDGEMENTS

I would like to extend my heartfelt thanks to my supervisor, Dr. Andrew Luchak, for persevering with me on this journey and for agreeing to the pursuit of a dissertation topic that was uniquely me. Your support truly meant the world to me.

A special thanks to my dissertation committee members, Dr. Jennifer Jennings, Dr. Michelle Inness, Dr. Karen Hughes and Dr. Lloyd Steier for their collective wisdom, compassion, guidance and expertise as I navigated through this process. You have each influenced my journey in a profound way and I will be forever thankful for your time and efforts.

Thank you also to all the wonderful friends and colleagues that I have met along the way – you each inspire me in a different way and push me to continue to reach higher. A special thanks to the members of my original cohort, Neil Brigden, Luanne Currie, Krista Fiolleau, Kris Hoang and Amir Fahimi – I couldn't have done it without you. Also a huge thank you to Dionne Pohler for her friendship and her unwavering belief that I could do this.

Finally, thank you to our families for all of your love and support throughout this sometimes long and winding road. I couldn't have done it without you.

TABLE OF CONTENTS

Chapter 4 – Intentionality To Become An Entrepreneur: Is It As Simple As Approach vs. Avoidance?

Chapter 5 – Conclusion

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

In a world of increasingly 'boundaryless' careers (Arthur & Rousseau, 1996; Inkson, Gunz, Ganesh & Roper, 2012), both initial & subsequent career choices have taken on increased importance. While in the past people may have chosen one job or profession for the entire duration of their working lives, this is generally no longer the case. This social shift has important implications, as a key part of whether someone chooses a career at any stage is whether they think they are able to execute the duties of such a position or perform well in it. Thus, self-efficacy, or one's judgment of how well they can implement the behaviours required for successful goal attainment in a given situation (Bandura, 1977; 1997) can be expected to form the basis for many career-related decisions.

The construct of self-efficacy has its roots in social cognitive theory (Bandura, 1986) and is posited to play a central role in human agency. This agentic view of behavior and cognition is one well-suited to the notion of careers in a 'boundaryless' environment, particularly to understanding career transitions that may occur in today's workplaces, both internal and external to existing organizations. Judgments of self-efficacy in any context are based on four principal sources of information (Bandura, 1997). These include having prior mastery experiences, vicarious experiences for judging capability in comparison with the performance of others, verbal persuasion or social sources of information about capability, as well as one's physiological state. Generally, prior mastery experiences are thought to be the strongest source of self-efficacy, followed by

vicarious experience, however this may depend on the individual and the situation.

Social cognitive theory, and self-efficacy in particular, have been applied to diverse areas of research including human development, school achievement, health, and career choice. Vocational psychologists quickly embraced self-efficacy (eg. Betz & Hackett, 1981), whose research has demonstrated that self-efficacy beliefs act as significant determinants of career interests, goals, choices and performance (see Betz, 2000 for a review). Indeed, Bandura (1997) has suggested that self-efficacy should be conceptualized in a context specific manner. One of the contexts in which self-efficacy has received increasing attention is in the entrepreneurship literature. In fact, entrepreneurship researchers have developed a domain specific self-efficacy construct, aptly named entrepreneurial self-efficacy (ESE). Derived from the generalized construct of self-efficacy, ESE refers to the belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen, Greene & Crick, 1998; DeNoble, Jung & Ehrlich, 1999).

Broadly, I am interested in the construct of ESE and its potential impact on career-related decisions; specifically decisions of whether to undertake entrepreneurial activity or not as part of one's career. These decisions represent a range of options; from staying in your current role despite mounting efficacy to venture, to showing the intent to leave your existing organization to pursue a separate venture. For the purposes of the current work, I approach the question of the impact of ESE on career-related decisions by undertaking three different

studies, each using a different approach in order to gain a more nuanced understanding of ESE and its relationship to both individual and organizational variables.

The first paper, co-authored with Jennifer Jennings is forthcoming at the *International Journal of Gender and Entrepreneurship*. The paper investigates observed gender differences in ESE from a learning perspective. Prior research has shown that on average, women are far less likely than men to express the intent to start their own business and that ESE is a key determinant of that intent (Boyd & Vozikis, 1994; Fitzsimmons & Douglas, 2011; Krueger, 1993; Krueger, Reilly & Carsrud, 2000; Zhao, Seibert & Hills, 2005). Research has also demonstrated that women tend to have lower levels of ESE than men (Chen, Greene & Crick, 1998; Gatewood, Shaver, Powers & Gartner, 2002; Wilson, Kickul, Marlino, Barbosa & Griffiths, 2009). Although some researchers have begun to investigate the factors that contribute to gender differences in ESE, these early studies are limited by a lack of a unifying theoretical framework. Given these findings and the importance of entrepreneurship as a potential career choice in the world of 'boundaryless' careers, the paper aims to better understand what drives lower levels of ESE in pre- and early-career women.

The aforementioned learning perspective encompasses the four major factors contributing to the development of self-efficacy; enactive mastery, vicarious experience, verbal persuasion and physiological arousal. Specifically, we were interested in whether these four factors mediated the well-established relationship between gender and ESE. In support of our hypotheses, we found that

enactive mastery, physiological arousal and verbal persuasion all mediated the gender-ESE relationship. Vicarious experience however did not mediate the relationship, which ran counter to our hypothesis. Each finding is discussed in further detail and suggestions are made for the pursuit of future research.

Given that existing organizations are an important source for future entrepreneurs (Audia & Rider, 2007) in today's world of 'boundaryless' careers, in the second paper I turn to an investigation of how high performance work systems (HPWS) in existing organizations may help to foster ESE in working individuals. Though definitions vary, a HPWS is generally understood to represent a complementary set of HR practices that equip employees with the knowledge, skills, abilities and motivation to contribute value to an organization (Delery & Shaw, 2001). Rooted in the resource-based view with its requirements for competitive advantage (Barney, 1991) and the behavioral perspective with its focus on shaping employees' attitudes and behaviours through organizational design (Schuler & Jackson, 1987), using human capital theory (Becker, 1962), social exchange theory (Blau, 1964) and social cognitive theory (Bandura, 1986), I argue that HPWS can help establish a behavioral context supportive of an organization's need to act ambidextrously with two salient effects on employees.

Drawing on human capital and social exchange theories, the first effect is to encourage employees to use their skills to engage in the incremental and radical forms of creativity that help contribute to the ambidextrous organization's needs to exploit and explore, respectively. The second effect, drawn from social cognitive theory, shows how the enactive mastery experiences of employees

working creatively and adaptively can in turn influence their cognitions, leading to career growth for employees through the formation of more entrepreneurially-minded cognitions as represented by the construct of ESE. These findings are discussed in the context of overall research on HPWS and entrepreneurial career choice, adding dimension to the notion of ambidexterity at the individual level. They also contribute nuance to the entrepreneurship literature's thinking about how entrepreneurial cognitions are formed in employment, driven by novel theorizing about the contributions of human capital, social exchange and social cognitive theories.

Building off of the 'approach' vs. 'avoidance' conceptualization of Bandura's work on self-efficacy (Wood & Bandura, 1989), my third paper explores how the presence of ESE among employed individuals translates into an intentionality to pursue an entrepreneurial career, relative to other employment options. Unlike prior studies which examine entrepreneurial intentions (EI) as a separate point of reference for pursuing a career path in entrepreneurship, I combine this measure with staying intentions (SI) and through the use of cluster analysis create four profiles of career choice intentionality among employed individuals: incubating entrepreneur (high EI, high SI); imminent entrepreneur (high EI, low SI); employed stayer (low EI, high SI); and employed leaver (low EI, low SI). My analysis across the four profile groups shows that this methodology reveals nuances in the ESE-EI relationship that go undetected when this relationship is studied in isolation. Specifically, while higher levels of ESE lead individuals to approach entrepreneurship by increasing the probability of

being an imminent entrepreneur relative to employed stayer or leaver, only gender differences distinguish incubating from imminent entrepreneurs with women more likely to be in the former category.

My results call for a reconsideration of what it means for people with higher and lower levels of ESE to 'approach' and 'avoid' entrepreneurial career choices, respectively. That is because higher levels of ESE are not significantly different for incubating and imminent entrepreneurs who are similar in that they both approach entrepreneurship through their high EI but differ in that incubators also avoid such a choice through high SI while those in the imminent category are more poised to approach this choice through their low SI. This suggests that ESE may be a necessary but insufficient condition for transitioning from employment to entrepreneurship. Male-female differences and the implications of a profile approach for more precise estimates of career intentionality are also discussed.

In sum, the goal of all three of the above-noted investigations is to contribute to a better understanding of ESE, its antecedents and consequences at the individual level of analysis as well as its implications for entrepreneurial career choice. My contribution to each literature is varied and will be further delineated in each individual paper. Each paper is presented in its entirety followed by general conclusions arising from all three studies.

REFERENCES

Arthur, M.B., & Rousseau, D.M. (1996). *The Boundaryless Career: A New Employment Principle for a New Organization Era.* New York, NY: Oxford University Press.

Audia, P.G. & Rider, C.I. (2007). Entrepreneurs as organizational products revisited. In J.R. Baum, M. Frese & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 113-130). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The Exercise of Control.* New York, NY: Freeman.

Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17,* 99–120.

Becker, G.S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, *70*, 9-49.

Betz, N.E. (2000). Self-efficacy as a basis for career assessment. *Journal of Career Assessment, 8,* 205-222.

Betz, N.E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology, 28,* 399-410.

Blau, P. M. (1964). *Exchange and power in social life*. New York: Wiley.

Boyd, N. G., and Vozikis, G. S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice, 18,* 64-77.

Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing, 13*, 295-316.

Delery, J.E., & Shaw, J.D. (2001). The strategic management of people in work organizations: Review, synthesis and extension. In G.R. Ferris (Ed.), *Research in Personnel and Human Resources Management* (Vol. 20, pp.165-197). Greenwich, CT: JAI Press.

DeNoble, A.F., Jung, D.S., & Ehrlich, S.B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. In P. Reynolds, W. Bygrave, S. Manigart, C. Mason, G. Meyer, H. Sapienza & K. Shaver (Eds.), *Frontiers of Entrepreneurship Research*. Babson Park, MA: Babson College.

Fitzsimmons, J.R., & Douglas, E.J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing, 26(4),* 431-440.

Gatewood, E. J., Shaver, K. G., Powers, J. B. & Gartner, W. B. (2002). Entrepreneurial expectancy, task effort, and performance. *Entrepreneurship Theory and Practice, 27(2),* 187-206.

Inkson, K., Gunz, H., Ganesh, S., & Roper, G. (2012). Boundaryless careers: Bringing back boundaries. *Organization Studies, 33(3),* 323-340.

Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice, 18,* 5-21.

Krueger, N.F., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15(5-6),* 411-432.

Patel, P.C., Messersmith, J.G., & Lepak, D.P. (2013). Walking the tightrope: An assessement of the relationship between high-performance work systems and organizational ambidexterity. *Academy of Management Journal, 56(5),* 1420-1442.

Schuler, R.S., & Jackson, S.E. (1987). Linking competitive strategy with human resource management practices'. *Academy of Management Executive, 3*, 207-19.

Unger, J., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytic review. *Journal of Business Venturing, 26(3),* 341-358.

Wilson, F., Kickul, J., Marlino, D., Barbosa, S.D., & Griffiths, M. (2009). An analysis of the role of gender and self-efficacy in developing female entrepreneurial interest and behaviour. *Journal of Developmental Entrepreneurship, 14(2),* 105-119.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14(3),* 361-384.

Zhao, H., Seibert, S.E., & Hills, G.E. (2005). The mediating role of self-efficacy

in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90(6),* 1265-1272.

CHAPTER 2

GENDER AND ENTREPRENEURIAL SELF-EFFICACY: A LEARNING PERSPECTIVE[1]

In a world where traditional career boundaries are shifting, entrepreneurship is often viewed as an 'equalizer' across social and demographic groups (Brush, DeBruin & Welter, 2009) and as a potential avenue for women, in particular, to break through existing glass ceilings (Sullivan and Meek, 2012). Yet despite these prospects, females around the world continue to be under-represented in entrepreneurial careers. Research consistently demonstrates that women are less likely than men to express intentions to start their own business (Wilson, Marlino & Kickul, 2004; Zhao, Seibert & Hills, 2005), to be engaged in venture creation activities (Allen, Elam, Langowitz & Dean, 2008; Kelley, Brush, Greene & Litovsky, 2011; Minniti, Allen & Langowitz, 2005; Reynolds, Carter, Gartner, Greene & Cox, 2002) and to become business owners (Allen *et al*., 2008; Kelley *et al.*, 2011; Minniti *et al.,* 2005).

One possible explanation is that females, on average, feel less efficacious about their entrepreneurial ability than males. Numerous investigations have found entrepreneurial self-efficacy (ESE) to be a key determinant of entrepreneurial intentions and/or activity (Boyd and Vozikis, 1994; Fitzsimmons and Douglas, 2011; Krueger, 1993; Krueger, Reilly & Carsrud 2000; Zhao *et al*., 2005). A growing number also reveal that women tend to possess lower ESE than

[1] A version of this chapter has been accepted for publication. Dempsey & Jennings (2014). International Journal of Gender and Entrepreneurship. This article is © Emerald Group Publishing and permission has been granted for this version to appear here. Emerald does not grant permission for this article to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.

men (Chen, Greene & Crick, 1998; Gatewood, Shaver, Powers & Gartner, 2002; Kirkwood, 2009; Wilson, Kickul, Marlino, Barbosa & Griffiths, 2009). There is even some evidence that this gender gap emerges early, apparent not only amongst young adults but even amongst adolescents (Kickul, Wilson, Marlino & Barbosa, 2008; Kourilsky and Walstad, 1998; Scherer, Brodzinski, & Wiebe 1990; Wilson, Kickul & Marlino, 2007).

Given the socio-economic benefits associated with entrepreneurship (Acs, Arenius, Hay & Minniti, 2005), it is important to understand why young women tend to possess lower levels of ESE relative to their male counterparts. It is particularly puzzling why this is so even within more gender egalitarian and innovation-driven regions such as North America, where females are now just as likely (if not slightly more so) to be enrolled in post-secondary education in general and within previously male-dominated faculties such as business in particular (Statistics Canada, 2009; U.S. Department of Education, 2010). Although some researchers have begun to investigate the factors that contribute to gender differences in ESE (e.g., BarNir, Watson & Hutchins, 2011; Wilson *et al.*, 2009), these early studies are not only limited but also lack a unifying guiding theoretical framework.

Consistent with the cognitive turn in entrepreneurship research more broadly (Baron, 2004; Mitchell *et al.*, 2007), we suggest that Bandura's (1977, 1986) social learning perspective offers such an overarching framework. This perspective posits four major factors critical to the development of self-efficacy in general: enactive mastery, vicarious experience, physiological arousal and verbal

persuasion. Our study explores whether gender differences exist with respect to these key factors as they pertain to entrepreneurship; and, if so, whether such differentials can help account for the tendency of young women to possess lower ESE in comparison to young men.

LITERATURE REVIEW, THEORY AND HYPOTHESES

Gender Differences in ESE

Derived from the broader construct of general self-efficacy (Bandura, 1977), entrepreneurial self-efficacy (ESE) refers to the belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen *et al.,* 1998; DeNoble, Jung & Ehrlich, 1999). Understanding how ESE develops is important because considerable research indicates that individuals who perceive themselves to possess entrepreneurially relevant capabilities tend to have higher intentions to engage in venture creation activities (Chen *et al.,* 1998; DeNoble *et al.,* 1999; Jung, Ehrlich, DeNoble & Baik, 2001; Krueger *et al.*, 2000; Segal, Borgia & Schoenfeld, 2002; Zhao *et al.,* 2005). Additional research reveals that those with higher ESE are more likely to initiate and persist with actual behaviours related to venture creation (Anna, Chandler, Jansen & Mero, 1999; Baum, Locke & Smith, 2001; Baum and Locke, 2004; Hmieleski and Corbett, 2008; Sequeira, Mueller & McGee, 2007). Boyd and Vozikis (1994) further suggest that individuals with higher degrees of ESE during the early career stage, in particular, are more likely to participate in entrepreneurial activity later in life.

Clear gender differences exist in ESE, with women tending to feel less efficacious, on average, about their entrepreneurial ability relative to men. This gender gap is observable amongst adolescents (Kickul *et al.,* 2008; Kourilsky and Walstad, 1998; Scherer *et al.,* 1990; Wilson *et al.,* 2007; Wilson *et al.,* 2009), continues amongst undergraduate students (Scherer *et al.,* 1990; Matthews and Moser, 1996), and can even persist amongst MBA students (Wilson *et al.,* 2007)[1] and working adults (Kirkwood, 2009; Wilson *et al.,* 2009). These findings are troubling, for they suggest that potential female entrepreneurs may hold preconceived notions of whether or not they are capable of successfully launching an entrepreneurial venture, even before they start.

Efforts to understand what drives this tendency for women to feel less efficacious about their entrepreneurial ability—and the factors that can increase their ESE—are conspicuously absent within the literature. One notable exception is the study by Wilson *et al.* (2009), which revealed that the positive effects of entrepreneurship education on ESE are stronger for women than men. Another is BarNir *et al.*'s (2011) investigation, which found that exposure to an entrepreneurial role model affects women's ESE more than men's. Although these initial studies offer some provocative insights, we do not yet have a complete understanding of the factors that lead women to feel less efficacious than men about their ability to pursue an entrepreneurial career. To help guide such understanding, and facilitate the interpretation and integration of findings within and across empirical research, we suggest that embryonic work on the determinants of gender differences in ESE—as well as broader work on the

factors contributing to ESE in general—would benefit from an overarching theoretical framework.

A Learning Perspective on Gender and ESE

For guidance regarding the development of such a framework, we revisited Bandura's (1977, 1986) classic work on self-efficacy in general. As part of his broader social learning theory, Bandura posited that individuals process, weigh and integrate diverse sources of information concerning their capabilities, form an assessment of their efficaciousness with respect to a certain task, and then regulate their behaviour accordingly. The four principal sources of information contributing to efficacy judgements consist of: (1) one's prior performance attainments; i.e., *enactive mastery;* (2) observations of how others perform; i.e., *vicarious experience;* (3) information about one's physiological state; i.e., *physiological arousal*; and, (4) feedback from others that one possesses the ability to perform well, i.e., *verbal persuasion*. Efficacy judgments result from the integration and assimilation of information derived from all four of these sources (Gist and Mitchell, 1992). We elaborate each source below, summarizing extant work within the entrepreneurship literature, if available, and positing each as a partial mediator of the relationship between gender and ESE.

Enactive mastery. According to Bandura (1986), one's own history of performance attainments provides the most influential source of efficacy information. Prior successes tend to raise efficacy appraisals whereas repeated failures lower them, especially if the failures occur early and do not reflect a lack of effort or adverse circumstances. After a strong sense of efficacy develops

through repeated successes, occasional failures are unlikely to have much effect on one's judgment of efficacy. Indeed, in order to gain a more stable and resilient sense of self-efficacy, it is necessary to have direct experience in overcoming obstacles through effort and perseverance (Wood and Bandura, 1989).

Research on the effects of prior *entrepreneurial* experience, in particular, corroborates these general findings. Krueger (1993), for example, found that broader and more positive previous experiences with entrepreneurship increased the perceived feasibility and desirability, respectively, of pursuing such a career in the future. More recently, Zhao *et al.* (2005) observed a positive relationship between prior entrepreneurial experience and ESE, which increased future entrepreneurial intentions.

Given these demonstrated impacts of prior entrepreneurial experience, gender differences in this factor are likely to offer a partial explanation for the tendency of females to possess lower ESE. This then raises the question of whether even *young* women are less likely to have experimented with entrepreneurial endeavours in the past. In light of findings demonstrating the lower participation of females in entrepreneurial activity the world over, it is highly likely that young women will possess less start-up experience than young men. As a result, their likelihood of encountering success at doing so—let alone *repeated* success as per social learning theory—will also be comparatively lower. We therefore hypothesize that:

> ***Hypothesis 1:*** *Young women will possess less enactive mastery related to entrepreneurship than young men, which will partially account for their lower ESE.*

Vicarious experience. Self-efficacy is influenced not only by processing information about one's own 'enactive mastery' but also by observing others perform (Bandura, 1977). Seeing others succeed—especially those similar to self—can raise efficacy by suggesting that one also has the ability to do well. Following the same logic, observing the failure of others tends to lower judgments of one's own capabilities. Although Bandura (1986) noted that the influence of vicarious experience is generally weaker than that of direct experience, observing others perform can still provide significant and enduring changes in self-efficacy. Individuals convinced of their own efficacy by observing successful others often weather the experience of direct failure by sustaining effort in the face of setbacks. In contrast, those convinced of their own inefficacy due to seeing others perform poorly often behave in ineffective ways, which consequently generates inability and lower self-efficacy.

Supporting evidence exists within the entrepreneurship literature. Scherer, Adams, Carley & Wiebe (1989) established early on, for example, that the presence of a parental entrepreneurial role model tends to be associated with increased expectancy for an entrepreneurial career. More recently, BarNir *et al.* (2011) found that exposure to role models had a direct positive impact on ESE in particular. Similarly, Zellweger, Sieger & Halter (2011) found that students with a family business background tend to be more optimistic about their efficacy to pursue an entrepreneurial career than those with no such background.

In light of such findings, the observed gender differential in ESE might also stem from gender differences in vicarious experience. This raises the

question, however, of whether young women are less likely to possess entrepreneurial role models. Although there is no basis for expecting females to be less likely than males to have a parent who is an entrepreneur, Bandura's (1977, 1986) arguments pertaining to vicarious experience are particularly applicable to *similar* others. Given that gender is one of the primary categories for social comparison processes, young women are more likely to consider their mothers than their fathers as referent others (cf., Heckert *et al.*, 2002). When this is considered in conjunction with the previously noted evidence regarding the lower participation rates of females in entrepreneurship, it is therefore less likely that young women will possess a similar other within their immediate family who has engaged in entrepreneurial activity—let alone successfully—than young men. As such, we suggest that:

> ***Hypothesis 2:*** *Young women will possess less vicarious experience related to entrepreneurship than young men, which will partially account for their lower ESE.*

Physiological arousal. Bandura (1977, 1986) further suggested that people also consider information regarding their physiological state in determining their efficacy. More specifically, individuals tend to judge their physiological arousal in stressful or taxing situations as a sign of vulnerability and dysfunction, which can debilitate their performance. As such, individuals are less inclined to expect success when they are tense and agitated.

Comparatively fewer entrepreneurship studies have examined the influence of affective reactions, rather than prior experience or role models, on ESE. One noteworthy exception is that by Renko (2010), which revealed a

positive association between passion for founding a business and ESE. Another relevant study is that by Souitaris, Zerbinati & Al-Laham (2007), which demonstrated that the inspiration derived from entrepreneurship education tends to arouse emotions and raise entrepreneurial attitudes and intentions, thereby suggesting the importance of physiological arousal to ESE.

We know even less about whether entrepreneurial endeavours (or thoughts thereof) generate different levels (or types) of physiological arousal in women versus men. If the preceding hypotheses hold, however, and young women tend to possess less enactive mastery and less vicarious experience relevant to entrepreneurship than young men, then it seems reasonable to expect that they are likely to be more anxious about engaging in entrepreneurial activity in the future as a result of this lower exposure in the past. For the same reasons, it is also reasonable to expect that young women will exhibit relatively lower levels of *positive* affective arousal, such as excitement and enthusiasm, at the thought of pursuing an entrepreneurial career. Renko's (2010) analysis offers preliminary support for the latter conjecture, as it revealed that female university students tended to express less passion for founding a business relative to their male counterparts. In light of this suggestive evidence and the preceding arguments, we therefore expect that:

> ***Hypothesis 3:*** *Young women will exhibit more negative (and less positive) physiological arousal related to entrepreneurship than young men, which will partially account for their lower ESE.*

Verbal persuasion. Self-efficacy can also be enhanced by receiving feedback from others that one possesses the capabilities needed to perform well

on a specified task. Bandura (1986) posited that while it is difficult to create enduring changes in self-efficacy through verbal persuasion, this source of efficacy information can contribute to successful performance if the feedback provided is within realistic boundaries. This is because those who hear from others that they possess the capabilities necessary to undertake and complete a task tend to mobilize greater and more sustained effort towards it. Raising beliefs to unrealistic levels, however, only invites failures that discredit the persuaders and further undermines the efficacy of the recipient.

Very few entrepreneurship researchers have examined the role played by verbal persuasion. Within their conceptual piece, Boyd and Vozikis (1994) suggested that higher levels of verbal persuasion can lead to higher levels of ESE; but, much like Bandura (1986), stressed the importance of designing subsequent entrepreneurial tasks that provide the recipient with mastery experiences. Gatewood *et al.* (2002), however, found that type of feedback provided had no effect on subsequent effort towards, or performance on, an entrepreneurial task. Interestingly, however, their study also revealed that, regardless of whether the men in their sample received positive or negative feedback on their entrepreneurial ability, they tended to express significantly higher expectancies of pursuing entrepreneurship in comparison to the women. Given that the study's experimental design involved randomly assigning participants to either feedback condition, unfortunately it cannot provide insight into whether men and women are likely to receive different types of verbal persuasion regarding their

entrepreneurial potential in the first place. Emergent research on gender stereotypes regarding entrepreneurship, however, suggests that this is likely.

As noted by several scholars (e.g., Ahl, 2006; Calas, Smircich & Bourne, 2009; Greene, Brush, Hart & Saparito, 2001), entrepreneurship tends to be portrayed as a masculine undertaking—a characterization supported by several empirical studies. Gupta, Turban, Wasti & Sikdar (2009) three-country investigation, for instance, demonstrated that individuals tend to associate entrepreneurs with predominantly masculine characteristics. Similarly, Baron, Markman & Hirsa's (2001) experiment revealed that individuals also tend to deem women less feminine when described as entrepreneurs rather than managers. Likewise, Verheul, Uhlaner & Thurik's (2005) analysis showed that women are hesitant to describe themselves as entrepreneurs, even in light of their actual business accomplishments. Combined, such findings suggest that young men and women are likely to receive very different messages—subtle or otherwise—about their suitability for an entrepreneurial career. More specifically, we expect that:

> ***Hypothesis 4:*** *Young women will receive less positive (and more negative) verbal persuasion related to their suitability for an entrepreneurial career than young men, which will partially account for their lower ESE.*

METHODS

Sample

Given our interest in explaining gender differences in ESE amongst young adults, we tested our hypotheses using a university student sample. The original sample consisted of 237 students enrolled at a major Canadian university. After eliminating those who were over the age of 30 to ensure that the participants were in the pre- or early-career stage, the final sample consisted of 82 male and 140 female participants. Although the female participants outnumbered their male counterparts, their proportion (63 percent) is largely representative of the overall proportion completing university education in Canada. As indicated in a recent policy report (Statistics Canada, 2009), women comprised 57 percent of undergraduate students enrolled in Canadian universities in the 2007/08 academic year.

Design

Each of the participating students completed both phases of our two-stage, quasi-experimental study. The first stage consisted of an online survey. We used the data obtained from this component to examine our first three hypotheses pertaining to whether enactive mastery, vicarious experience and physiological arousal partially mediate the relationship between gender and ESE.

The second stage consisted of the quasi-experimental component. We designed this component to test our fourth hypothesis pertaining to the potential mediating effect of verbal persuasion. It consisted of an opportunity evaluation task based upon the findings of Baron and Ensley (2006). Their analysis revealed

that novice and expert entrepreneurs tend to evaluate business opportunities using very different criteria. Novices typically focus upon the novelty of the idea, the extent to which the idea relies on new technology, the superiority of the product/service, the potential to change the industry, and intuition or gut feeling. In contrast, expert entrepreneurs tend to evaluate the idea's ability to solve customer problems, generate revenues quickly and produce a positive cash flow as well as whether the risk is manageable and social network members support the idea. We presented these ten criteria in random order, asking participants to identify the five typically used by novices versus experts respectively.

Based on their actual performance, we then assigned participants to one of three feedback conditions: success (if they identified four or more of the expert criteria correctly), ambiguous (if they identified three of the expert criteria correctly) or failure (if they identified two or fewer of the expert criteria correctly). We deliberately chose this approach over randomly assigning the participants to each condition in order to heighten the believability of the feedback received and to attenuate potential scepticism about the study's design and objectives. Then, to accentuate the salience of the feedback received, we presented the participants with subsequent scenarios in which we depicted them as encountering further success, ambiguous performance or failure on each of three other critical tasks in the entrepreneurial process beyond opportunity evaluation (i.e., garnering enthusiasm for the venture concept, securing financial capital, and generating revenues and profits). The outcome described within each scenario

mirrored the participant's prior level of actual task performance. See Appendix A for further details on the three types of feedback and scenario descriptions.

We then collected measures of perceived performance, re-assessed ESE, and conducted manipulation checks on the realism of the opportunity evaluation criteria, believability of the performance feedback and realism of the hypothetical scenarios. The perceived performance measure (the mean of four items rated on a scale ranging from '1 = very unsuccessful/negative' to '4 = very successful/positive'; $\alpha = .76$) was highly and significantly correlated with the feedback condition ($r = .78$, $p = .01$). Each of these manipulation checks was rated on a four-point scale ranging from 1 = 'highly unrealistic/unbelievable' to 4 = 'highly realistic/believable'. The means of 3.01, 2.73 and 3.27 were reassuring, with *t*-tests revealing no significant gender differences.

Measures

Entrepreneurial self-efficacy. We measured pre- and post-experimental ESE using the ten-item scale developed by Cox, Mueller & Moss (2002). Example items include 'conceive of a unique idea for a business' and 'convince others to invest in your business'. Participants were asked how confident they were, at the moment asked, in their ability to perform each of the ten tasks on a five-point Likert scale ranging from '1 = not at all confident' to '5 = completely confident'. The pre and post measures exhibited high reliability ($\alpha = 0.93$ and $\alpha = 0.95$ respectively) and were significantly correlated (at 0.61 and 0.65 respectively) with pre- and post-experimental measures of Linan and Chen's (2009) six-item scale of entrepreneurial intention, providing evidence of their predictive validity.

A principal components factor analysis with varimax rotation revealed that all ten items loaded onto one factor, supporting arguments in favour of a uni- rather than multi-dimensional measure of overall ESE (for a recent summary of this debate see Díaz Garcia, 2012). Please refer to Appendix B for a complete listing of items used in this measure.

Gender. Participants were asked to indicate their gender, with female coded as 1 and male coded as 0.

Enactive mastery. We collected two indicators of a participant's prior experience with entrepreneurship. The first, labeled *entrepreneurial experience,* captured his/her involvement in launching a business venture—a notable outcome in its own right considering that only 5 to 15 percent of adults within even innovation-driven regions like North America and Europe tend to be engaged in nascent entrepreneurial activity (Kelley, Bosma & Amoros, 2010). This variable was coded 1 for participants who indicated that they currently or had previously been involved in founding or managing a new business; 0 if not. The second indicator, labeled *degree of experienced success,* was designed to capture Bandura's (1977, 1986) emphasis on prior 'mastery' experiences. It was measured by asking those with start-up experience to rate the success of both their past and current ventures on a five-point, Likert scale ranging from '1 = very unsuccessful' to '5 = very successful' (with a score of 0 assigned to those without the specified type of prior experience). The scores to the two questions were then summed to capture Bandura's notion of 'repeated' mastery experiences; as such, this measure ranged from 0 to 10.

Vicarious experience. We collected two indicators of vicarious experience. The first was the simple existence of an *entrepreneurial role model*, which was coded 1 for participants who indicated that someone in their immediate family other than themselves currently owned a business or had owned one in the past; 0 if they responded 'no' or 'not sure'. Because our sample was comprised of students, a focus on immediate family members seemed particularly appropriate. Consistent with Bandura's (1977, 1986) idea that witnessing success can raise efficacy while observing failure has the potential to lower efficacy, our second indicator, labeled *degree of vicarious success,* captures the extent to which participants were exposed to high-performing entrepreneurial role models in particular. To measure this variable, we asked those with entrepreneurial role models to report how successful their family member's business(es) had been on a five-point, Likert scale ranging from '1 = very unsuccessful' to '5 = very successful'. Those without an entrepreneur within their immediate family received a score of 0.

Physiological arousal. We collected two measures of physiological arousal, *negative affect towards entrepreneurship* and *positive affect towards entrepreneurship,* using Watson, Clark & Tellegen's (1988) Positive and Negative Affect Schedule (PANAS). Participants were asked to indicate how they felt about entrepreneurship as a potential career choice 'at the moment' when presented with each of the 20 different emotions included in the PANAS. Sample items for the ten-item negative affect sub-scale included 'distressed' and 'jittery' (pre $\alpha = 0.69$, post $\alpha = 0.78$); sample items for the ten-item positive affect sub-

scale included ‘excited’ and ‘enthusiastic’ (pre $\alpha = 0.68$, post $\alpha = 0.79$). Participants indicated their responses to each item on a five-point Likert scale ranging from ‘very slightly or not at all’ to ‘extremely’.

Verbal persuasion. Given that our final hypothesis called attention to the mediating effects of both positive and negative feedback, we created two dummy variables to capture their potential influence. The first, *success feedback,* was coded 1 for participants assigned to this condition based upon their actual performance on the opportunity evaluation task; 0 otherwise. The second dummy variable, *failure feedback,* was similarly coded 1 for participants assigned to this condition based upon their actual performance on the opportunity evaluation task; 0 otherwise. We used *ambiguous feedback* as the holdout referent category within our analyses.

Control variables. We controlled for several basic demographic variables likely to be associated with the independent, mediating and/or dependent variables: namely, the participant’s *age,* whether they were a first-generation *immigrant* to Canada, and whether they were a *business student.* To ensure that our findings were not spuriously attributable to the participant’s broader perceived efficaciousness, we also controlled for the dispositional variable of *generalized self-efficacy* using Chen, Gully & Eden’s (2001) eight-item scale ($\alpha = 0.87$). Finally, given prior findings that formal entrepreneurship training influences ESE (e.g., Wilson *et al.,* 2009), we controlled for *entrepreneurial education* by the total number of entrepreneurship courses taken at the high school, college and/or university level.

RESULTS

Gender Differences in ESE and the Hypothesized Mediators

Table 2-1 summarizes the descriptive statistics and correlations for all variables included in our analysis [2]. Table 2-2 reports the gender differences in ESE and the hypothesized mediators. Consistent with prior research, the young women in our sample possessed significantly lower pre- and post-experimental ESE than the young men. With the exception of the two vicarious experience measures, significant gender differences were apparent within all of the other posited mediators. Notably, the females reported lower levels on both enactive mastery measures and both physiological arousal measures [3]. Moreover, due to their actual performance on the opportunity evaluation task, they were less likely to be in the 'success feedback' condition and more likely to be in the 'failure feedback' condition for verbal persuasion. To establish whether these observed differences could help explain their lower ESE, we followed Baron and Kenny's (1986) guidelines for establishing a mediated relationship and tested our hypotheses using the bivariate findings presented in Tables 2-1 and 2-2 in combination with the multivariate OLS regression results [4] presented in Tables 2-3 and 2-4.

---------- insert Tables 2-1 through 2-4 about here ----------

Pre-Experimental Results for H1 through H3

Combined, our findings lend strong support for H1, which had postulated that the lower ESE of young women is partially attributable to gender differences in enactive mastery. As indicated in models 2 and 3 of Table 2-3, both measures

of this construct exerted significant and positive impacts on pre-experimental ESE. Moreover, when either of these variables was stepped into the regression model, the negative coefficient for female observed in model 1 of Table 2-3 became non-significant.

Our findings do not lend any support for H2. This hypothesis had suggested that the lower ESE of young women is also partially attributable to gender differences in vicarious experience. In addition to finding no statistically significant gender differences in the two indicators of this proposed mediator, the findings reported in models 4 and 5 of Table 2-3 reveal that neither of these variables exerted a significant impact on pre-experimental ESE.

H3 proposed that gender differences in physiological arousal could partially explain the lower ESE of young women. Despite the fact that the young women exhibited lower (rather than higher) levels of negative affect towards entrepreneurship (see Table 2-2), our findings lend support for this hypothesis. As indicated in models 6 and 7 of Table 2-3, both measures of physiological arousal exerted a significant influence on pre-experimental ESE. Moreover, when either variable was stepped into the regression model, the coefficient for female became non-significant. It is important to note, however, that both exerted a *positive* effect on ESE (we were expecting negative affect to be negatively associated with ESE).

As noted in models 8 and 9 of Table 2-3, the control variables plus the measures of enactive mastery, vicarious experience and physiological arousal accounted for approximately 40 percent of the variance in pre-experimental ESE. The standardized coefficients reported in these full models further revealed that

the indicators of physiological arousal—i.e., negative and positive affect towards entrepreneurship—were the most influential mediators of the relationship between gender and ESE. This finding is notable considering the considerably greater attention paid thus far to the effects of prior experience and role modelling.

Post-Experimental Results for H4

H4 suggested that differences in the verbal persuasion that young women and men are likely to receive about their potential to succeed in entrepreneurial pursuits might also help explain the tendency of females to possess lower ESE. As previously noted, the findings reported in Table 2-2 revealed that the women in our study were less likely to receive success feedback and more likely to receive failure feedback due to their actual performance on the opportunity evaluation task.

The findings reported in Table 2-4, however, indicate that only the latter type of feedback exerted a significant effect on post-experimental ESE, relative to receiving ambiguous feedback, after controlling for the effects of either pre-experimental ESE (model 2) or the combined effects of enactive mastery, vicarious experience and physiological arousal (models 4 and 6). More specifically, in support of H4, our results indicate that the lower post-experimental ESE reported by the female participants in our study was attributable, in part, to their greater likelihood of receiving failure feedback on the opportunity evaluation task and subsequent scenarios. Given that receiving success feedback did not increase ESE relative receiving ambiguous feedback, though, it is most accurate to state that we found only partial support for H4.

The results summarized in Table 2-4 further indicate that the models containing measures of verbal persuasion explained between 42 and 64 percent of the variance in post-experimental ESE. Although this is a relatively high proportion, a comparison of the standardized regression coefficients reveals that the feedback variables did not exert the strongest influence. As in the preceding analyses for pre-experimental ESE, the indicators of physiological arousal (i.e., positive and negative affect) emerged as the most influential determinants [5].

DISCUSSION

Summary, Contributions and Implications

Adopting the comprehensive and unified overarching framework provided by social learning theory (Bandura, 1977, 1986), we sought to provide insight into the important question of why young women tend to feel less efficacious about their entrepreneurial ability relative to young men. We implemented a novel, two-stage design for examining this question, supplementing an online survey with a quasi-experiment based upon an opportunity evaluation task. Our findings not only corroborate prior work demonstrating significant gender differences in ESE, but also extend understanding of key determinants.

Consistent with social learning theory, we found that enactive mastery (as measured by the existence and perceived success of prior start-up experience) fully mediated the relationship between gender and ESE. Notably, the males in our university student sample were almost twice as likely as the females to have already engaged in some form of entrepreneurial activity in the past, which increased their confidence about doing so in the future. This raises the obvious

question of why gender differentials exist with respect to experimenting with entrepreneurship during adolescence or even earlier—a question worthy of future research.

Unexpectedly, we did not find any evidence to suggest that vicarious experience acts as a mediator of the gender-ESE relationship. For one, we did not find any significant differences between the males and females in terms of having an entrepreneurial role model in their immediate family. Moreover, we did not find that the existence of this role model or, even more surprisingly, the perceived success of that role model, had a positive impact on ESE. In retrospect, however, these null findings are potentially attributable to the fact that we did not ask whether the family member with entrepreneurial experience was male or female. In light of prior work demonstrating that individuals are more likely to base their career expectations on information provided from those of the same sex (e.g., Heckert *et al.,* 2002), it is possible that direct access to female role models can, in fact, enhance the ESE of young women. We encourage future research along these lines—especially that which explicitly considers the gender match between the two parties.

Our findings for physiological arousal were also quite surprising. For one, we found that the young women possessed not only less *positive* affect towards entrepreneurship relative to the young men but also, counter to our expectation, less *negative* affect. These findings suggest that females find the thought of an entrepreneurial career less arousing, in general, than males; that is, as less likely to generate feelings of excitement *or* anxiety. Second, we found that higher levels

of both positive *and* negative affect tended to be associated with higher levels of ESE. The latter finding runs counter to research on self-efficacy in general, which has shown that physiological indicators of tension and agitation tend to lower expectations of success (Bandura, 1977, 1986). To help substantiate whether entrepreneurship represents an anomaly in this regard, we recommend that future researchers implement designs that are more capable of establishing the causal directionality between ESE and physiological arousal than was possible herein. Third, our analysis revealed that the physiological arousal indicators were the most influential of the variables included in our models. These findings contrast with Bandura's (1986) assertion about enactive mastery as the most important determinant of self-efficacy, yet lend credence to recent calls for further research adopting an affective lens on entrepreneurial phenomena (Baron, 2008; Cardon, Foo, Shepherd & Wiklund, 2012). Such a lens is noticeably and surprising absent within the women's entrepreneurship literature in particular.

Our findings for verbal persuasion are also noteworthy—especially considering the dearth of extant studies investigating the effects of feedback on ESE. Notably, our quasi-experimental results revealed that students who received failure feedback reported significantly lower ESE than those who received ambiguous feedback—but that receiving success feedback did not improve ESE relative to receiving ambiguous feedback. We also found that the female students were more likely to find themselves in the failure feedback condition due to their actual performance on an opportunity evaluation task. Given that our study revealed no significant gender differences in the number of entrepreneurship

courses completed, we call to future researchers to help make sense of this rather troubling finding.

Limitations

Our study possesses certain limitations, one of which is its reliance upon a sample of university students. While this type of sample possesses advantages in terms of homogeneity and similar life-stage concerns, it makes it difficult to generalize our results to broader populations. Given that we were interested in the lower ESE of young women who are at the stage of embarking upon their careers, however, we believe that the sampling frame was appropriate.

Second, although the opportunity evaluation task and the scenarios were designed to be realistic portrayals of events an entrepreneur may encounter, the lab setting in which participants completed the task and received the feedback may have impacted the findings. Although participants indicated through the manipulation checks that they found the criteria in the task realistic, the feedback believable and the scenarios realistic, the lab scenario may have seemed like a contrived setting in which to be performing a task related to entrepreneurship. This may have been due to the physical setup of a room full of computers, or simply due to the online design of the task itself. Although conducting the task in an entrepreneurship class or incubator may have appeared more genuine to some participants, we were interested a more general population of young people with various interests and skills—not just those with a previously identified interest in entrepreneurship more likely to be enrolled in a venture creation class or taking

part in an incubator. We do not believe that the online nature of the task is an overwhelming concern with our participant demographic of university students.

Third, although Bandura (1977, 1986) suggests that vicarious experience may be particularly impactful if the role model is similar to the individual (such as of the same gender), we did not ask participants to report whether their entrepreneur in their immediate family was male or female. Doing so would have been more consistent with Bandura's arguments and may explain our non-significant findings for this component of ESE.

Fourth, we measured verbal persuasion by task performance feedback delivered via an online message rather than face-to-face. As indicated above, we deemed this an appropriate delivery method given the age demographic of our participants. We also note that Gatewood *et al.* (2002) provided participants with written online feedback in their experiment. We further note that doing so eliminates the potential for the content of the feedback to be confounded with the sender's tone of voice, appearance, etc.

Conclusion

Despite the above-noted limitations, our findings possess important practical implications for the development of entrepreneurial self-efficacy amongst individuals at the early career stage. In terms of entrepreneurship education, for example, they may provoke a reconsideration of current curricula and delivery models if we wish to close the gender gap in ESE. Given the results demonstrating that the lower ESE of young women is partially attributable to gender differences in enactive mastery, physiological arousal and verbal

persuasion, it may be particularly important for curriculum developers to include content that reinforces these components for young women. Moreover, although we did not find that vicarious experience explained the observed gender differences in ESE, the limitations of measure do not preclude curriculum developers from continuing to design activities that increase young women's exposure to, and relationships with, female entrepreneurial mentors.

Despite the greater representation of women in the workforce overall, the pipeline into an entrepreneurial career continues to be segregated by gender. As such, gaining a greater understanding of how and why this gendered entry phenomenon exists—and the avenues to address it—remain of critical importance. By developing a more nuanced understanding of the cognitive (and affective) drivers of ESE, we might be able to expand the intervention options available for bolstering young women's confidence about pursuing an entrepreneurial career.

ENDNOTES

[1] See Mueller and Conway Dato-on (2008) for an exception.

[2] Given the survey nature of a portion of the research design, we followed Podsakoff, *et al.'s* (2003) procedural and statistical recommendations for controlling common method variance. Given the existence of some significant positive correlations exceeding the suggested .60 limit (Kennedy, 1992), we stepped such variables separately into our regression equations.

[3] It is important to note that the relatively lower score for the young women on the negative affect towards entrepreneurship measure runs counter to our expectation in H3.

[4] To ensure there was no multi-collinearity present, we calculated variance inflation factors. These were all well below the critical cut-off value of 10 (Hair, Black, Babin, Anderson & Tatham, 2006). To ensure our variables were normally distributed and thus appropriate for OLS regression, we conducted skewness checks and re-coded any variables if necessary.

[5] When post-experimental measures of affect (both positive and negative) were included in models 3-6 of Table 4, their higher coefficients indicated that they were even stronger determinants of ESE than the pre-experimental indicators of physiological arousal (results available upon request).

TABLE 2-1

Means, standard deviations and correlations

	Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Pre-expt ESE	3.08	0.84																
2	Post-expt ESE	2.83	0.91	0.73															
3	Female	0.63	0.48	-0.14	-0.24														
4	Age	22.33	2.70	0.10	0.27	-0.22													
5	Immigrant	0.55	0.50	0.27	0.28	-0.14	0.32												
6	Bus student	0.60	0.49	0.14	0.13	0.07	-0.14	0.15											
7	Gen self-eff	3.98	0.50	0.29	0.18	-0.06	0.10	-0.02	-0.05										
8	Ent education	1.43	1.82	0.25	0.27	0.05	0.18	0.14	0.08	0.01									
9	Ent experience	0.18	0.39	0.22	0.19	-0.14	-0.03	0.09	-0.02	0.03	0.16								
10	Experienced success	0.72	1.67	0.27	0.26	-0.16	0.00	0.08	-0.02	0.05	0.25	0.99							
11	Ent role model	0.57	0.50	0.06	0.05	0.09	-0.04	0.04	-0.00	0.02	0.11	0.06	0.07						
12	Vicarious success	1.95	1.93	0.01	0.03	0.04	-0.09	0.00	-0.06	0.03	0.07	0.07	0.06	0.91					
13	Neg affect to ent	2.46	0.70	0.47	0.51	-0.14	0.13	0.22	0.09	0.02	0.17	0.12	0.11	0.00	-0.01				
14	Pos affect to ent	2.53	0.67	0.49	0.48	-0.15	0.17	0.27	0.07	0.03	0.12	0.09	0.09	0.01	-0.01	0.73			
15	Success feedback	0.12	0.33	-0.05	0.10	-0.14	0.18	0.12	-0.07	0.00	-0.03	0.04	0.03	0.10	0.09	-0.06	-0.16		
16	Ambiguous fdbk	0.45	0.50	0.04	0.19	-0.06	-0.03	0.01	0.03	-0.02	0.14	0.01	0.03	-0.01	-0.04	0.01	0.04	-0.34	
17	Failure feedback	0.43	0.50	-0.13	-0.26	0.15	-0.09	-0.09	0.01	0.02	-0.12	-0.04	-0.05	-0.05	-0.02	0.06	0.04	-0.32	-0.78

Pearson correlations reported when both variables are continuous; Spearman correlations when at least one is categorical; values greater than |.14| are significant at $p \leq .05$

TABLE 2-2

Gender differences in ESE and hypothesized mediators

Variables	Females	Males	Test Statistic
Dependent Variables			
Pre-experimental ESE	mean = 3.00	mean = 3.24	t = -2.17*
Post-experimental ESE	mean = 2.66	mean = 3.11	t = -3.65***
Enactive Mastery			
Entrepreneurial experience	yes = 14.3 %	yes = 25.6 %	χ^2 = 4.40*
Degree of experienced success	mean = 0.44	mean = 1.20	t = -2.81**
Vicarious Experience			
Entrepreneurial role model	yes = 60.0 %	yes = 51.2 %	χ^2 = 1.62
Degree of vicarious success	mean = 2.01	mean = 1.83	t = 0.69
Physiological Arousal			
Negative affect towards entrepreneurship (pre)	mean = 2.39	mean = 2.59	t = -2.11*
Positive affect towards entrepreneurship (pre)	mean = 2.45	mean = 2.66	t = -2.39*
Verbal Persuasion			
Success feedback	yes = 8.6 %	yes = 18.3 %	χ^2 = 4.57*
Ambiguous feedback	yes = 42.9 %	yes = 48.8 %	χ^2 = 0.73
Failure feedback	yes = 48.6 %	yes = 32.9 %	χ^2 = 5.17*

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$ (two-tailed tests)

TABLE 2-3

OLS regression results for pre-experimental ESE

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Female	-0.13*	-0.11†	-0.09	-0.13*	-0.13*	-0.08	-0.09	-0.07	-0.04
Age	-0.05	-0.02	-0.02	-0.05	-0.05	-0.07	-0.06	-0.04	-0.05
Immigrant	0.19**	0.17**	0.17**	0.19**	0.19**	0.09	0.12*	0.11†	0.08
Business student	0.11†	0.12*	0.12†	0.11†	0.11†	0.08	0.08	0.09	0.09
General self-efficacy	0.30***	0.29***	0.29***	0.30***	0.30***	0.29***	0.29***	0.29***	0.28***
Ent education	0.23***	0.19**	0.18**	0.23***	0.23***	0.20***	0.18**	0.15*	0.15**
Ent experience		0.16*						0.13*	
Degree experienced success			0.17**						0.16**
Entrepreneurial role model				-0.01				-0.01	
Degree vicarious success					-0.01				-0.02
Neg affect towards ent						0.39***		0.38***	
Pos affect towards ent							0.43***		0.42***
Overall R^2	0.22	0.24	0.24	0.22	0.22	0.36	0.38	0.37	0.40
F	10.02***	9.71***	9.85***	8.55***	8.55***	17.10***	18.82***	14.02***	15.90***

Values in the table are standardized coefficients (beta weights)

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$ (two-tailed tests)

TABLE 2-4

OLS regression results for post-experimental ESE

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	-0.11*	-0.07	-0.13*	-0.09	-0.12*	-0.08
Age	0.17**	0.16***	0.14*	0.13*	0.14*	0.13*
Immigrant	0.03	0.02	0.08	0.06	0.06	0.05
Business student	0.06	0.06	0.11*	0.12*	0.12*	0.12*
General self-efficacy	-0.04	-0.03	0.15**	0.17***	0.15**	0.16**
Ent education	0.06	0.02	0.13*	0.09	0.14*	0.11†
Pre-expt ESE	0.68***	0.70***				
Ent experience			0.11*	0.12*		
Degree experienced success					0.15*	0.14*
Ent role model			0.02	0.01		
Degree vicarious success					0.04	0.04
Neg affect towards ent[a]			0.41***	0.44***		
Pos affect towards ent[b]					0.38***	0.40***
Success feedback		0.04		0.05		0.01
Failure feedback		-0.20***		-0.22***		-0.21***
Overall R^2	0.60	0.64	0.40	0.45	0.38	0.42
F	44.88***	41.62***	15.70***	15.87***	14.50***	14.06***

Values in the table are standardized coefficients (beta weights)

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$ (two-tailed tests)

REFERENCES

Acs, Z.J., Arenius, P., Hay, M., & Minniti, M. (2005). *Global entrepreneurship monitor: 2004 executive report.* Babson Park, MA: Babson College.

Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice, 30(5),* 595-621.

Allen, I. E., Elam, A., Langowitz, N., & Dean, M. (2008). *2007 Global entrepreneurship monitor. Report on women and entrepreneurship.* Babson Park, MA: Babson College.

Anna, A.L, Chandler, G.N., Jansen, E., & Mero, N.P. (1999). Women business owners in traditional and non-traditional industries. *Journal of Business Venturing, 15,* 279-303.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review, 84(2),* 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

BarNir, A., Watson, W.E., & Hutchins, H.M. (2011). Mediation and moderated mediation in the relationship among role model, self-efficacy, entrepreneurial career intention and gender. *Journal of Applied Social Psychology, 41(2),* 270-297.

Baron, R.A. (2004). The cognitive perspective: A valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing, 19(2),* 221-239.

Baron, R.A. (2008). The role of affect in the entrepreneurial process. *Academy of Management Review, 33(2),* 328-340.

Baron, R.A., Markman, G.D., & Hirsa, A. (2001). Perceptions of women and men as entrepreneurs: Evidence for differential effects of attributional augmenting. *Journal of Applied Psychology, 86(5),* 923-929.

Baron, R.A., & Ensley, M.D. (2006). Opportunity recognition as the detection of meaningful patterns: Evidence from comparisons of novice and experienced entrepreneurs. *Management Science, 52(9),* 1331-1344.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51(6),* 1173-1182.

Baum, J., Locke, E.A., & Smith, K. (2001). A multidimensional model of venture growth. *Academy of Management Journal, 44(2),* 292-303.

Baum, J., & Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology, 89(4),* 587-598.

Boyd, N., & Vozikis, G. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice, 18(4),* 63-77.

Brush, C.G., DeBruin, A., & Welter, F. (2009). A gender-aware framework for women's entrepreneurship. *International Journal of Gender and Entrepreneurship, 1(1),* 8-24.

Calas, M.B., Smircich, L., & Bourne, K.A. (2009). Extending the boundaries: Reframing 'Entrepreneurship as social change' through feminist perspectives. *Academy of Management Review, 34(3),* 552-569.

Cardon, M.S., Foo, M.D., Shepherd, D., & Wiklund, J. (2012). Exploring the heart: Entrepreneurial emotion is a hot topic. *Entrepreneurship Theory and Practice, 36(1),* 1-10.

Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing, 13,* 295-316.

Chen, G., Gully, S.M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4(1),* 62-83.

Cox, L.W., Mueller, S.L., & Moss, S.E. (2002). The impact of entrepreneurship education on entrepreneurial self-efficacy. *International Journal of Entrepreneurship Education, 1(2),* 229-245.

DeNoble, A.F., Jung, D.S., & Ehrlich, S.B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. In P. Reynolds, W. Bygrave, S. Manigart, C. Mason, G. Meyer, H. Sapienza & K. Shaver (Eds.), *Frontiers of Entrepreneurship Research* (pp. 73-87). Babson Park, MA: Babson College.

Diaz-Garcia, C. (2012). Gender and the multi-dimensional nature of entrepreneurial self-efficacy: Factor analytic findings. In K. Hughes and J. Jennings (Eds.), *Global Women's Entrepreneurship Research: Diverse Settings, Questions and Approaches* (pp. 204-225). Morthampton, MA: Edward Elgar.

Fitzsimmons, J.R., & Douglas, E.J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing, 26(4),* 431-440.

Gatewood, E. J., Shaver, K. G., Powers, J. B., & Gartner, W. B. (2002). Entrepreneurial expectancy, task effort, and performance. *Entrepreneurship Theory and Practice*, 27(2), 187-206.

Gist, M.E., & Mitchell, T.R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17,* 183-211.

Greene, P.G., Brush, C.G., Hart, M.M., & Saparito, P. (2001). Patterns of venture capital funding: Is gender a factor? *Venture Capital,* 3(1), 63-83.

Gupta, V.K., Turban, D.B., Wasti, S.A., & Sikdar, A. (2009). The role of gender stereotypes in perceptions of entrepreneurs and intentions to become an entrepreneurs. *Entrepreneurship Theory and Practice, 33(2),* 397-417.

Hair, J.F., Black, B., Babin, B., Anderson, R.E., & Tatham, R.L. (2006). *Multivariate Data Analysis.* Upper Saddle River, NJ: Prentice Hall.

Heckert, T.M., Droste, H.E., Adams, P.J., Griffin, C.M., Roberts, L.L., Mueller, M.A., & Wallis, H.A. (2002). Gender differences in anticipated salary: Role of salary estimates for others, job characteristics, career paths and job inputs. *Sex Roles, 47(3-4),* 139-151.

Hmieleski, K.M., & Corbett, A.C. (2008). The contrasting interaction effects of improvisational behaviour with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing, 23*, 482-496.

Jung, D.S., Ehrlich, S.B., DeNoble, A.F., & Baik, K.B. (2001). Entrepreneurial self-efficacy and its relationship to entrepreneurial action: A comparative study between the US and Korea. *Management International, 6(1),* 41-54.

Kelley, D. J., Bosma, N., & Amoros, J.E. (2010). *Global Entrepreneurship Monitor: 2010 Global Report.* Babson Park, MA: Babson College.

Kelley, D. J., Brush, C.G., Greene, P.G., & Litovsky, Y. (2011). *Global Entrepreneurship Monitor: 2010 Women's Report.* Babson Park, MA: Babson College.

Kennedy, P. (1992). *A Guide to Econometric Models.* Cambridge, MA: MIT Press.

Kickul, J., Wilson, F., Marlino, D., & Barbosa, S.D. (2008). Are misalignments of perceptions and self-efficacy causing gender gaps in entrepreneurial intentions among our nation's teens? *Journal of Small Business and Enterprise Development, 15(2),* 321-335.

Kirkwood, J. (2009). Is a lack of self-confidence hindering women entrepreneurs? *International Journal of Gender and Entrepreneurship, 1(2),* 118-133.

Kourilsky, M.L., & Walstad, W.B. (1998). Entrepreneurship and female youth: Knowledge, attitudes, gender differences and educational practices. *Journal of Business Venturing, 13,* 77-88.

Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice, 18,* 5-21.

Krueger, N.F., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions", *Journal of Business Venturing, 15(5-6),* 411-432.

Linan, F., & Chen, Y.W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice, 33,* 593-617.

Matthews, C.H., & Moser, S.B. (1996). A longitudinal investigation on the impact of family background and gender on interest in small firm ownership. *Journal of Small Business Management, 34(2),* 29-43.

Minniti, M., Allen, I., & Langowitz, N. (2005). *Global Entrepreneurship Monitor 2005. Report on Women and Entrepreneurship.* Babson Park, MA: Babson College.

Mitchell. R.K., Busenitz, L.W., Bird, B., Gaglio, C.M., McMullen, J.S., Morse, E.A., & Smith, J.B. (2007). The central question in entrepreneurial cognition research 2007. *Entrepreneurship Theory & Practice, 31,* 1-27.

Mueller, S.L., & Conway Dato-On, M. (2008). Gender role orientation as a determinant of entrepreneurial self-efficacy. *Journal of Developmental Entrepreneurship, 13(1),* 3-20.

Podsakoff, P.M., MacKenzie, S.B., Lee, J., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended practices. *Journal of Applied Psychology, 88,* 879-903.

Reynolds, P., Carter, N., Gartner, W., Greene, P., & Cox, L. (2002). *The entrepreneur next door, characteristics of individuals starting companies in Americ.* Kansas City, MO: Ewing Marion Kauffman Foundation.

Renko, M. (2010). Entrepreneurial passion, self-efficacy, and entrepreneurial intent. Paper presented at the 2010 Diana International Conference on Women's Entrepreneurship Research, Banff, Canada.

Scherer, R.F., Adams, J.S., Carley, S.S., & Wiebe, F.A. (1989). Role model performance effects on development of entrepreneurial career preference. *Entrepreneurship Theory & Practice, 13(3),* 53-71.

Scherer, R.F., Brodzinski, J.D., & Wiebe, F.A. (1990). Entrepreneurial career selection and gender: A socialization approach. *Journal of Small Business Management, 28(2),* 37-44.

Segal, G., Borgia, D., & Schoenfeld, J. (2002). Using social cognitive career theory to predict self-employment goals. *New England Journal of Entrepreneurship, 5(2),* 47-56.

Sequeira, J., Mueller, S.L., & McGee, J.E. (2007). The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behaviour. *Journal of Developmental Entrepreneurship, 12(3),* 275-293.

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,* 566-591.

Statistics Canada. (2009). *Post-secondary enrolment and graduation.* Ottawa, ON: Statistics Canada.

Sullivan, D.M., & Meek, W.R. (2012). Gender and entrepreneurship: A review and process model. *Journal of Managerial Psychology, 27(5),* 428-458.

U.S. Department of Education, National Centre for Education Statistics. (2010). Total enrollment in degree granting institutions by sex and attendance status. *Digest of education statistics (Chapter 3, Table 199).* Washington, DC: US Department of Education.

Verheul, I., Uhlaner, L., & Thurik, R. (2005). Business accomplishments, gender and entrepreneurial self-image. *Journal of Business Venturing, 20(4),* 483-518.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54(6),* 1063-1070.

Wilson, K., Kickul, J., & Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice, 13,* 387-406.

Wilson, F., Kickul, J., Marlino, D., Barbosa, S.D., & Griffiths, M. (2009). An analysis of the role of gender and self-efficacy in developing female entrepreneurial interest and behaviour. *Journal of Developmental Entrepreneurship, 14(2),* 105-119.

Wilson, F., Marlino, D., & Kickul, J. (2004). Our entrepreneurial future: examining the diverse attitudes and motivations of teens across gender and ethnic identity. *Journal of Developmental Entrepreneurship*, 9(3), 177-198.

Wood, R.E., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14,* 361-384.

Zellweger, T., Sieger, P., & Halter, F. (2011). Should I stay or should I go? Career choice intentions of students with family business background. *Journal of Business Venturing, 26,* 521-536.

Zhao, H., Seibert, S.E., & Hills, G.E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90(6),* 1265-1272.

CHAPTER 3

HIGH PERFORMANCE WORK SYSTEMS, AMBIDEXTROUS EMPLOYEE BEHAVIOURS, AND ENTREPRENEURIAL SELF-EFFICACY

Organizational ambidexterity refers to the ability of an organization to exploit existing market opportunities as efficiently as possible while remaining flexible to the need to explore new market opportunities as they present themselves (Andriopoulos & Lewis, 2009; Benner & Tushman, 2003; Duncan, 1976; Gibson & Birkinshaw, 2004; Tushman & O'Reilly, 1996). Because the ability to explore and exploit are not only fundamental for organizational survival but difficult to do at the same time (March, 1991; Sorenson, 2002), organizational scholars have emphasized the need for firms to develop both competencies within the firm. And though organizations can create multiple systems to encourage both exploitation and exploration, such methods can be costly, requiring the availability of slack resources to cover the costs of duplication in organization resources such systems imply. Thus, it might not only be more economical for firms to establish a context encouraging employees to engage in one or both forms of behaviour as circumstances require (Lubatkin, Simsek, Ling Veiga, 2006) but it may indeed be a source of sustainable competitive advantage to do so (Barney, 1991).

Two important role behaviours integrated into employees' daily work routines that I argue support the firms need for an ambidextrous workforce are creativity and adaptability. Embedded in the value creation process of the firm itself, and responding to the need for more research on those organizational

systems that would facilitate workforce ambidexterity (Lavie, Stettner & Tushman, 2010; Simsek, 2009; Simsek, Heavey, Veiga, & Souter, 2009), I argue creative and adaptable behaviors are capable of being encouraged through high performance work systems (HPWS). Though definitions vary (Posthuma, Campion, Masimova & Campion, 2013), a HPWS system is generally thought to be made up of a complementary set of HR practices that equip employees with the right knowledge, skills and abilities (e.g., through extensive recruitment, selection and development activities) and motivation (e.g., through valued rewards and feedback, opportunities to participate through broadly designed jobs) to contribute value to an organization (Delery & Shaw, 2001; Huselid, 1995). This view of the HPWS is consistent with the resource-based view of the firm, which has long been argued by strategic human resource management researchers to offer organizations a source of sustainable competitive advantage by encouraging employees to engage in value enhancing activities that are rare and hard for competitors to imitate (Barney & Wright, 1998).

In contrast to the substantial and long-standing interest shown by strategic human resource management researchers in examining the effects of a HPWS on organizational level outcomes (Combs, Liu, Hall & Ketchen, 2006), the focus of this paper allows me to contribute to understanding the impact of HPWS on a nascent area of interest - individual level outcomes. Originating from findings that employees' experiences under the same HPWS can and do differ from those of managers (Liao, Toya, Lepak & Hong, 2009) as well as other employees (Niishi, Lepak & Schneider, 2008), the literature views employee outcomes as a key

mediating mechanism through which value creation for the firm occurs (Jiang, Takeuchi & Lepak, 2013). This view is generally consistent with the behavioral perspective (Schuler & Jackson, 1987) which conceptualizes the organization as deliberately designing an HR system to shape employees' attitudes and behaviours in a manner instrumental to the execution of the firm's strategy (McMahan, Virick & Wright, 1999). Shaping, in this context, is generally understood to be more powerful where the signals from the HPWS cuing employees about valued attitudes and behaviours are stronger (Bowen & Ostroff, 2004).

Among those studies tracing the impact of a HPWS on firm advantage through employees, considerable emphasis has been placed on understanding the motivational mechanism through which this effect occurs (Jiang, Lepak, Hu & Baer, 2012). These efforts have drawn on such theories as social exchange (Boxall, Ang & Bartram, 2011), empowerment (Butts, DeJoy, Schaffer, Wilson & Vandenberg, 2009), trust (Zacharatos, Barling & Iverson, 2005) and person-organization fit (Boon, Den Hartog, Boselie & Paauwe, 2011) to illuminate the workings of this mechanism. Among these explanations, social exchange theory (Blau, 1964), including the role of reciprocity (Gouldner, 1960) is particularly fundamental, the argument being that employees who perceive that an organization's actions toward them are beneficial will feel motivated to reciprocate through additional effort to perpetuate the terms of exchange. Research showing aggregated measures of employee job satisfaction (Macky & Boxall, 2007; Wu & Chaturvedi, 2009), commitment (Macky & Boxall, 2007;

Sanders, Dorenbosch & deReuver, 2008) or extra-role behaviours (Takeuchi, Lepak, Wang & Takeuchi, 2007) to mediate the relationship between a HPWS and firm outcomes is consistent with this argument.

While not ignored, comparatively less focus has been placed on exploring the KSA enhancing mechanism which is generally embedded in the general vs. firm-specific distinction made by human capital theory (Becker 1962). General skills are portable across multiple employers whereas firm-specific skills provide value only in the setting in which they are accrued. For instance, training in inter-personal skills may be considered general whereas training in a particular technology unique to a firm would be considered firm-specific. Because general skills have value to all employers, they are not considered a source of sustainable competitive advantage according to the imitability requirement of the resource-based view. That is, because they are widely available and applicable to any firm, general skills are believed to offer only competitive parity unlike firm-specific skills which, because of their uniqueness, and assuming they add value, offer a source of sustainable advantage (Barney & Wright, 1998).

Though it is common in the research to refer to both the motivational and knowledge, skill and ability enhancing mechanisms (Jiang *et al.*, 2012) of a HPWS, the inter-dependencies between them are rarely emphasized. For instance, while human capital theory speaks of higher skill levels in a workforce generating a productivity advantage, the psychological mechanism prompting employees to participate in programs to develop mobility limiting firm-specific skills relies importantly on the potential for a social exchange relationship that is never really

acknowledged. Meanwhile, though social exchange theory provides a ready motivational mechanism for employees to engage in extra-role behaviours, the theory lacks precision with respect to specific behavioural predictions. This is most evident in the use of the theory to predict extra-role behaviour as a mediator of the HPWS-performance linkage notwithstanding the exact manner in which such additional effort is applicable to the technical core of the organization.

The failings in the literature to recognize the need for stronger integration between the motivation and knowledge, skill and ability enhancing aspects of the HPWS is easily remedied by recognizing that if employees under a HPWS feel supported (via a firm's willingness to invest in a social exchange relationship) then they will be properly incented to consent to firm-specific investments that tie them to the firm (ala human capital theory). This idea is difficult to test however, because the general-specific skills division is difficult to operationalize in practice, a dilemma often solved in the research by simply assuming that the higher skill levels of a workforce under a HPWS offers a source of advantage (Jiang *et al.*, 2012), which for the reasons mentioned above is not entirely consistent with the resource-based view framework.

In this paper I therefore tease out the subtle but complex relationship between specific and general human capital accumulation by highlighting the first and second order paths through which the HPWS impacts skill development. Drawing on both human capital and social exchange theories, the first-order path arises from the application of the higher level of general skills that employees working under a HPWS would be expected to have, to firm-specific processes of

value creation through creativity and adaptability on the job. This argument reconciles how firms can receive sustainable advantage as initially suggested by the resource-based view.

The second-order path, however, requires drawing on a more agentic theory of learning by individuals, which is new to the HPWS literature. Specifically, I draw on social cognitive theory (Bandura, 1986) to detail how the experience of working creatively and adaptively under a HPWS can influence individual cognitions, leading to career growth for employees through the more general acquisition of efficacy beliefs in the domain of activity in which such experiences fall. In a manner consistent with the intrapreneurial and ambidextrous type of climate a HPWS might reasonably be expected to create (Patel, Messersmith & Lepak, 2013), these experiences should lead to the development of employees' general skills in entrepreneurship as manifested in the concept of entrepreneurial self-efficacy (ESE), which refers to employees beliefs in their own abilities to engage in venturing activities either within or outside of their existing organization (Chen, Greene & Crick, 1998; DeNoble, Jung & Ehrlich, 1999).

While the development of ESE might well be an unintended consequence of a HPWS, it highlights how a cognitive perspective can add new insights around skill development and employee motivation under a HPWS which are not possible with the more unitarist conceptions of employee-employer interests embedded in the resource-based view, human capital theory, social exchange theory and the behavioral perspective. For instance, the behavioral perspective simply assumes employees will perform expected role behaviors communicated by the HPWS

(Jiang *et al.*, 2013) whereas social exchange sees positive and negative reciprocity norms follow from supportive and non-supportive employer actions, respectively (Gouldner, 1960). Neither of these approaches however lends themselves easily to a mixed-motive framework where employee agency is treated separate and apart from that of the firm. This social cognitive theory oriented approach has implications not only for understanding how complex human capital accumulation can be, but also for understanding a broader set of HPWS outcomes at the individual and organizational levels, particularly given that a HPWS can have a darker side (Jensen, Patel & Messersmith, 2013) that requires some measure of employee self-interest to guard against.

THEORETICAL BACKGROUND & HYPOTHESES

HPWS & Ambidextrous Employee Behaviours

Recent work at the organizational level of analysis suggests HPWS can facilitate organizational ambidexterity by helping to establish a behavioral context in which explorative and exploitative behaviours can be flexibly deployed (Patel *et al.*, 2013). Exploration is characterized by terms such as openness, search, experimentation, and risk-taking, and generally involves entirely new ideas or ways of doing things, whereas exploitation is better described by terms like closure, choice, implementation, refinement, and execution, and generally involves slight modifications to existing processes and/or procedures (March, 1991). A recent distinction in the creativity literature between radical and incremental creativity reflects these two different foci (Gilson & Madjar, 2011). Whereas incremental creativity refers to ideas meant to improve existing

processes, practices, policies or procedures (e.g., improving the efficiency of a process to allow the firm to better exploit an existing opportunity), radical creativity focuses on ideas that differ substantially from pre-existing routines and which might altogether replace established ways of doing things (e.g., exploring a new product or service idea that taps into an entirely new revenue stream).

As alluded to above, studying the impact of a HPWS on creativity offers an opportunity to clarify the manner in which the knowledge, skill and ability enhancing aspects of such a system contribute to sustainable competitive advantage. That is, despite the importance of firm-specific human capital to competitive advantage, empirical work fails to properly distinguish the two forms of human capital. Rather, the skill-enhancing effect of a HPWS is often simply described as being made possible through selective recruitment and hiring or through enhanced training and development programs (Takeuchi *et al.*, 2007) but as demonstrated by recent meta-analytic research it is rare for studies to link these practices to measures of individual or workforce human capital that reflects its specificity to the firm's operations (Jiang *et al.*, 2012). As mentioned, this failing ignores a key element of the resource-based view that only firm-specific skills offer a source of sustainable advantage (Barney & Wright, 1998). That is, to the extent that skills acquired from the external labor market through recruitment and selection processes are available to all employers they are general, not specific, and something the firm would be less interested in investing in (Becker, 1962).

In this paper, I tackle the issue of general vs. firm-specific skill development differently by suggesting that the value in human capital is not so

much in the 'level' possessed by any individual or collectively across an organization so much as in the extent such training transfers and is incorporated into the daily work routines of the individuals who possess it (Aguinis & Kraiger, 2009). Both the knowledge, skill and ability as well as the motivation enhancing aspects of a HPWS are important to this skill utilization argument. With respect to the former, employees with higher levels of human capital are better equipped to learn (Ployhart & Moliterno, 2011), which facilitates their ability to contribute to process improvement (viz. incremental creativity) as well as developing new products and services (viz. radical creativity).

However, given that these contributions are embedded in the specific work processes of the organization, employees may be unwilling to invest in firm-specific creative contributions without some expectation of a social exchange relationship with the employer. Because HPWS have been shown to meet a variety of employees' needs (Takeuchi *et al.*, 2007), I expect them to provide the appropriate behavioral context that encourages employees to use their higher general skill levels to contribute through both incremental and radical creativity. Moreover, because there is a relative advantage to exploitation over exploration for most firms (Sorenson, 2002), I expect perceptions of the HPWS to be more strongly related to incremental creativity as this form of creativity is more likely to be integrated into the day-to-day job functions of an employee unlike explorative activities which might be more episodic:

> *H1: Employee perceptions of a HPWS will be positively related to both incremental and radical employee creativity.*

H2: Employee perceptions of a HPWS will be more positively related to incremental than to radical employee creativity.

In addition to encouraging creative behaviours, I also expect that employee perceptions of their HPWS will be related to perceptions of the need for adaptability. While adaptability can have trait and state like qualities (Gould, 1979), the focus of this paper is on individuals' comfortability with adjusting themselves to fit new tasks and environments (Wang, Zhan, McCune & Truxillo, 2011), a key skill to be honed where flexibility is valued as in a HPWS setting (Delery & Shaw, 2001). As with creativity, both the knowledge, skill and ability as well as motivation enhancing aspects of the HPWS will be important for encouraging employee adaptability. Consistent with human capital theory, if more highly skilled employees are more productive, than this will include being adaptable in face of the need for change, a quality facilitated by the higher learning capacity of more highly skilled employees (Ployhart & Moliterno, 2011) who may have a broader range of behavioral routines to adapt as circumstances require. In ambidextrous organizations, this may take the form of employees being adaptable to changing customer demands (Reeves & Deimler, 2011; Youndt, Dean, Snell & Lepak, 1996) or contributing to and implementing process improving ideas (Delery & Shaw, 2001). As with creativity, and consistent with social exchange theory research showing employees resistant to change in the absence of fair treatment (Korsgaard, Sapienza & Schweiger, 2002), employees may be unwilling to embrace the need to be adaptable unless they feel supported and that they can trust the organization (Gibson & Birkinshaw, 2004), much like in a social exchange relationship. To the extent that higher skilled employees (ala

human capital theory) have a stronger motivation to be adaptable where their needs are being met (ala social exchange theory), I hypothesize the following:

> *H3: Employee perceptions of a HPWS will be positively related to employee adaptability on the job.*

Ambidextrous Employee Behaviours & the Development of ESE

Social cognitive theory is a theory of human agency. Specifically, the theory rejects a dualism between personal agency and a social structure disembodied from human activity (Bandura, 2012). In social cognitive theory, human agency operates within an interdependent causal structure involving what Bandura (1986) terms 'triadic reciprocal causation' between behavioural, personal and environmental factors (Bandura, 1978). Triadic reciprocal causation represents a rejection of the stimulus/response paradigm within behaviourism, which dominated the field of psychology for many decades. This behaviouristic theorizing was discordant with the social reality that much of what we learn is through the power of experience (Bandura, 2012).

Self-efficacy is a key component of social cognitive theory and is the mechanism through which agency is exercised. In fact, according to Bandura (2001), efficacy beliefs are the foundation of human agency. Self-efficacy refers to beliefs in one's capabilities to organize and execute the course(s) of action required to produce given attainments (Bandura, 1997). There are four sources of information that serve as input to the development of self-efficacy including enactive mastery, vicarious experience, physiological arousal and social persuasion (Bandura, 1997). Of the four sources, Bandura (1986) notes that one's

own history of experience provides the most influential source of efficacy information and as such will be the key focus of the arguments to follow.

Each of these information cues provides important data but according to Bandura (1982), it is the cognitive appraisal and integration of these data that ultimately determine the development of efficacy. This process of weighing, integrating and evaluating information about an individual's perceived capabilities results in the regulation of choices and efforts through the mechanism of personal agency (Bandura, Adams, Hardy & Howells, 1982). Self-efficacy can therefore be said to be malleable (Bandura, 1997) and as such, able to be influenced by experience with ambidextrous behaviours such as creativity and adaptability.

Bandura (1997) emphasizes that self-efficacy assessments are best tailored to specific content domains, entrepreneurship being one of them. As a context specific measure of the broader notion of self-efficacy, entrepreneurial self-efficacy (ESE) refers to one's belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen, Greene & Crick, 1998; DeNoble, Jung & Ehrlich, 1999). Prior research has revealed a strong linkage between ESE and a variety of entrepreneurial activities (Boyd & Vozikis, 1994; Fitzsimmons & Douglas, 2011; Krueger, 1993; Krueger, Reilly & Carsrud, 2000; Zhao, Seibert & Hills, 2005).

Notwithstanding these linkages, very little is known about how ESE itself develops, especially in employment settings (Gist, 1987), which many entrepreneurs credit as fundamental to their own development (Audia & Rider,

2007). Studies noting employment experience as important preparation for starting ventures and succeeding in them (Astebro & Thompson, 2011; Dimov, 2010; Unger, Rauch, Frese & Rosenbusch, 2011) are not very informative of the experiences themselves other than depicting them as relevant to the entrepreneurial undertaking in a generic sense. They do however lend credence to the notion that enactive mastery is an important factor in the building of entrepreneurial cognitions inside existing organizations.

Because entrepreneurs generate value through a combination of activities that include, among other things, the need to explore and exploit opportunities (Shane & Venkatamaran, 2000), I surmise that the experience of creative contribution in an incremental and radical sense will develop efficacy beliefs in employees' abilities to run a business. More specifically, organizational environments that present employees with complex situations that unexpectedly arise in their work provide them ongoing opportunities to generate creative responses, thereby developing their self-efficacy (Tierney & Farmer, 2011) for such 'owner-like' behaviour and activities. Certainly, Wu, McMullen, Neubert & Yi (2008) note that individual creativity is likely to yield entrepreneurial behaviours, an important pre-cursor of which are entrepreneurial cognitions such as ESE. Thus, if HPWS are designed to provide employees with the skills and motivation to act creatively in both incremental and radical senses of the term, it is reasonable to expect that these experiences may well develop efficacy beliefs in employees of existing organizations to feel and think like owners of a business (i.e., as an entrepreneur) through a process of enactive mastery.

H4: The effects of perceptions of a HPWS on entrepreneurial self-efficacy will be mediated by higher levels of incremental and radical creativity.

In a like manner, I also expect the experience of being adaptable to lead to the development of ESE. Krause, Frese, Friedrich & Unger (2005) noted that adaptability is important in achieving desirable outcomes from entrepreneurial actions. Indeed, to sense and adapt to uncertainty characterizes a critical entrepreneurial resource (Haynie & Shepherd, 2009; Ireland, Hitt & Sirmon, 2003; McGrath & MacMillan, 2000), which is learned through a process of enactive mastery or by gaining experience with being adaptable like the employee would be expected to do by being flexible to the needs to explore and exploit through radical and incremental creativity, respectively. Finally, employees who develop a comfort and familiarity with adapting to change overall, as might be expected in a value added organizational environment such as that involving a HPWS (Delery & Shaw, 2001), are also expected to develop higher ESE by gaining valuable experience in such an environment. Therefore, I expect that employees who gain experience being more adaptable will feel more comfortable and experience less anxiety about changing entrepreneurial-like role requirements (Ito & Brotheridge, 2005) to explore and exploit. As such, I expect that:

H5: The effects of perceptions of a HPWS on entrepreneurial self-efficacy will be mediated by higher levels of adaptability.

METHODS

Design & Sample

Data for this study were collected from an online survey administered to a research panel at two time points in 2011. Participants were recruited by Cint (www.cint.com), an international organization that provides access to a research-quality survey panel of over 7 million individuals who receive modest compensation for completing online surveys for a variety of purposes. Cint distributed email invitations on my behalf, and provided unique identifiers to allow me to match survey responses at two points in time, while ensuring that respondents remained anonymous. Data for several studies were collected at two points of time. At Time 1, 10,613 subjects were solicited by email invitation, yielding 6,219 responses (58.6% response rate). Of those 6,219 respondents, 1,979 declined participation prior to visiting the survey website and 2,335 chose not to participate after visiting the survey website. Of the 2,104 people (19.8%) who consented to participate and subsequently received access to my questionnaire, 1,238 participants were screened out by my eligibility criteria, 238 people withdrew and 628 participants completed the survey at Time 1 (74.0% completion rate among consenting, eligible participants). These criteria included that the participant must have been working full time and have been at their current employer for a minimum of one (1) year, that they be a minimum age of twenty-five (25) years, that they were not part of a union and finally that they did not supervise others. Three months later, at Time 2, the 628 subjects from Time 1 were invited to complete the Time 2 survey, for which completed responses for

310 participants completed were received. To keep employment experiences as uniform as possible, I excluded subjects who had moved into supervisory roles or changed organizations at Time 2, as well as those older than 67 years of age, which left me with 304 completed, matched surveys (a matched response rate of 49.4%). Participants in our final sample were therefore permanent, non-union, non-supervisory employees who had been with their current employer in the for-profit service industry for at least one year and were age 25 to 67. The average age of participants was 44.8 years and 63% of the sample was female, with an average organizational tenure of 7.9 years. The data was collected in such a manner (i.e. longitudinally) so as to enable the researchers to attempt to establish the temporal precedence of cause before effect in the relationships tested as well as to reduce common method variance.

Measures - Time 1

High Performance Work System (HPWS)

Despite nearly two decades of research on the subject of HPWS, there remains no accepted definition of the construct (Posthuma et al., 2013). This lack of construct clarity has meant that prior research has built measures of HPWS to suit individual research questions, leaving the field fractured (Delery, 1998; Delery & Shaw, 2001) and absent a generally established scale for the measurement of individual perceptions of HPWS. Delery & Shaw (2001) conclude that while there is no simple solution to the problem, creating such a measure on an individual basis should be driven by theory. In the current case, I am interested in creating a measure of the degree to which firms invest in

motivating employees to use their knowledge, skills and abilities on behalf of the organization and as such, an additive measure of such practices is thought to be appropriate as it reflects an 'investment' focus on behalf of the employer (Delery & Shaw, 2001).

In the face of no commonly accepted operationalization of a HPWS, the measure I use is adapted from various sources, principally Lepak & Snell (2002), Chuang & Liao (2010), Gong, Law, Chang & Xin (2009) and Mossholder, Richardson & Settoon (2011). These measures were adapted in two broad senses. The first involves the level of the measure. Many existing studies are based at the organizational level of analyses whereas my method, in contrast, asked individuals for their rating in relation to their current job in the organization. The second involves an effort to avoid duplication of items within or across other scales to ensure sufficient but parsimonious coverage of items relevant to both the knowledge, skill and ability as well as the motivation enhancing features of a HPWS. I expect these features to operate through five generally understood HR functional areas: job design (e.g., people in my job have discretion to make decisions without always reporting to a supervisor), staffing (e.g., when someone needs to be hired for this job emphasis is placed on identifying the best all-around candidate), training/development (e.g., the training I receive in connection with this job helps prepare me for future jobs I might want to do in this organization), performance feedback (e.g., the performance feedback received in this job emphasizes my personal learning and development goals) and rewards (e.g., the pay/rewards received in this job matches well with my organization's financial

performance). In all, respondents were asked to rate the extent to which they agreed with 4 items from each functional area for a total of 20 items using a seven-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. I calculated an average score across the five HR functional areas included in the scale, which showed very strong reliability (α = .95). Please refer to Appendix C for a complete listing of items.

Demographic characteristics

Information on the demographic characteristics of employees was also collected at Time 1 to enable me to control for unwanted sources of variation due to factors such as gender and age.

Measures – Time 2

Creativity

Creativity was measured using Gilson & Madjar's (2011) eight-item 'Incremental and Radical Creativity Scale', in which four items are designed to assess incremental creativity and the remaining four items capture radical creativity. Sample items include working on ideas that represent '… refinements on how things are currently done within in the organization' (incremental) and '…discoveries of completely new processes/products than what the organization currently does' (radical). Participants were asked to evaluate to what extent they would characterize the ideas they come up with in the present job on a seven-point Likert scale ranging from '1 = strongly disagree to 7 = strongly agree'. The Cronbach alpha reliability coefficients for the incremental and radical creativity scales were .93 and .90, respectively.

Adaptability

Adaptability was measured using the three-item scale developed by Gould (1979). A sample item includes 'I adapt easily to changes in my job'. The items were measured on a seven-point Likert scale ranging from '1 = strongly disagree' to '7 = strongly agree'. The Cronbach alpha reliability coefficient for this scale was .68.

Entrepreneurial self-efficacy

Entrepreneurial self-efficacy was measured using the ten-item 'Entrepreneurial Self-Efficacy Scale' developed by Cox, Mueller & Moss (2002). Participants were asked how confident they were, at the moment asked, in their ability to perform each of the ten tasks on a five-point Likert scale ranging from '1 = not at all confident' to '5 = extremely confident'. Example items include 'conceive of a unique idea for a business' and 'convince others to invest in your business'. The scale showed a high Cronbach reliability coefficient of .96. Please refer to Appendix B for a complete listing of items.

RESULTS

Preliminary Analyses

Before testing the hypotheses, I first evaluated the distinctiveness of the study variables through a series of confirmatory factor analysis (CFA) procedures. Because the assumption of multivariate normality was violated in the data (represented by a scaling correction factor greater than 1.00), I report results using statistics designed to adjust for non-normality (Bentler, 1988; Satorra & Bentler, 1999); a scaled chi-square statistic for overall model fit, robust versions of the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). Five variables were employed in the study: high performance work systems (HPWS), adaptability, incremental creativity, radical creativity and entrepreneurial self-efficacy (ESE). I compared three alternative models with the baseline five-factor model. As shown in Table 3-1, Model 1 (baseline five-factor model) fit the data well and provided substantial improvement in fit indexes over the alternative models (Models 2-4), which included four-, three- and two- factor models respectively, thereby providing support for the discriminant validity of each of the five-factors included in the model.

Insert Table 3-1 about here

Next, a CFA was conducted to test the hypothesized one-factor model for HPWS, which showed acceptable fit ($\chi 2 = 260.75$, df = 148, $p \leq 0.001$; RMSEA =

0.05; CFI = 0.96, SRMR = 0.04) and exhibited better fit than all alternative models tested, including a two-factor ($\chi 2 = 794.59$, df = 169, $p \leq 0.001$; RMSEA = 0.11; CFI = 0.80, SRMR = 0.07), three-factor ($\chi 2 = 709.59$, df = 167, $p \leq 0.001$; RMSEA = 1.03; CFI = 0.83, SRMR = 0.07) and a five-factor model ($\chi 2 = 415.83$, df = 160, $p \leq 0.001$; RMSEA = 0.07; CFI = 0.92, SRMR = 0.06).

Common Method Variance Assessment

A concern relating to single-source measures is the presence of common method bias or variance (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Although the above-noted CFA indicated that a one-factor solution exhibited the best fit for the HPWS measure, I further assessed the potential for this problem to be present in an overall sense using an alternative approach suggested by Podsakoff *et al.* (2003), namely Harman's one-factor test. Using this approach, I conducted an unrotated principal components factor analysis on all of the items in the study. Eight factors with eigenvalues great than 1 were obtained and these accounted for 73% of the total variance. The first factor accounted for 29% of the variance. As there were multiple factors and no single factor accounted for the majority of the observed variance, I concluded that substantial common method variance error was not present (Podsakoff *et al.,* 2003).

Descriptive Statistics

The means, standard deviations, reliability coefficients, and correlations for all study measures are provided in Table 3-2. The reliability of all measures is well within accepted practice, though my measure of adaptability is only marginally so, a potential consequence of its construction from only three items.

The table shows that correlations between all predictors are within reasonable ranges, suggesting the unique effects of each can reasonably be estimated through a statistical procedure like path analysis. Consistent with Hypothesis 1, perceptions of the HPWS are significantly and positively related to both incremental and radical creativity. Consistent with Hypothesis 2, perceptions of the HPWS are more positively related to incremental than to radical creativity. Though HPWS are positively related to adaptability in a manner consistent with Hypothesis 3, the relationship is not significant at conventional levels.

Insert Table 3-2 about here

Hypothesized Model

Having confirmed that the measurement model had adequate fit, I then used path analysis with Mplus Version 7 (Muthen & Muthen, 2012) to test the proposed hypotheses included in the structural model presented in Figure 3-1. As suggested by Preacher & Hayes (2008) for cases involving multiple mediators, I allowed the residuals of the proposed mediators to co-vary and calculated estimates of direct and indirect effects, which are reported in Table 3-3. As in the preliminary analyses, I report results using statistics designed to adjust for non-normality (Bentler, 1988; Satorra & Bentler, 1999); a scaled chi-square statistic for overall model fit, robust versions of the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). Results of the structural analysis of the proposed model

provided an acceptable fit to the data ($\chi 2 = 9.33$, df = 6, p = ns; RMSEA = 0.04; CFI = 0.98; SRMR = 0.03).

Insert Figure 3-1 about here

Insert Table 3-3 about here

The path analysis results, in combination with the earlier finding of a positive association between HPWS and both incremental and radical creativity, revealed support for both Hypotheses 1 and 2, in demonstrating that individual perceptions of their HPWS are positively related to both incremental ($B = .37$, $p \leq .001$) and radical ($B = .16$, $p \leq .05$) creativity and that such beliefs are also more strongly related to incremental creativity. Hypothesis 3 however, which proposed that individual perceptions of a HPWS would be positively related to adaptability, was not supported by either the descriptive analysis or the results of the path analysis ($B = .06$, p = ns).

Turning to an examination of the relationships proposed in Hypotheses 4 and 5, the path analysis results revealed that the paths from incremental creativity ($B = .14$, $p \leq .05$) and radical creativity ($B = .22$, $p \leq .001$) to entrepreneurial self-efficacy (ESE) were all positive and significant. When combined with the significant positive relationship reported between HPWS and both incremental and radical creativity reported above, Hypothesis 4 is supported. Hypothesis 5

proposed that adaptability would also mediate the HPWS-ESE relationship. Although the path from adaptability to ESE was positive and significant (B = .21, $p \leq .001$), the non-significant finding between HPWS and adaptability means that adaptability does not mediate the HPWS-ESE relationship and as such, Hypothesis 5 is not supported.

DISCUSSION

Recent evidence linking HPWS to organizational level ambidexterity (Patel *et al.*, 2013) begs the question of whether employees engage in behavioral routines consistent with such a relationship. Drawing on human capital and social exchange theories, I find employee perceptions of their HPWS encourage perceptions of creative contribution, both incrementally and radically, in a manner supportive of the exploitative and explorative demands of an ambidextrous organizational setting. Though employees in such a setting would also expect to be adaptable, I find no linkage to this characteristic from the HPWS itself. Drawing on social cognitive theory, I also trace a second order path of the HPWS, finding that it influences the development of employees' ESE indirectly through the experience afforded by both incremental and radical creative contribution, activities understood to be relevant to any business owner (March, 1991). While adaptability is also found to influence ESE, this effect is independent of any effect operating through the HPWS.

Theoretical and Practical Implications

Responding to the challenge to help distinguish firm-specific from general human capital, this study helps clarify how both develop from the work itself under a HPWS, something prior strategic human resource management research

has not sufficiently clarified. Drawing on human capital and social exchange theories, a first path is shown to arise from the application of employees' high general skills to firm-specific processes of value creation through incremental and radical creativity on the job. The second path draws on social cognitive theory to show how the experience of working creatively and adaptively can influence individual cognitions, leading to career growth for employees through the more general acquisition of ESE. By combining human capital theory and social exchange theory explanations, the first path helps to show how general human capital can still contribute to competitive advantage in the firm by encouraging employees to apply their higher level of general skills to make contributions unique to the firm's processes. The second path highlights how a cognitive perspective can add new insights around skill development and employee motivation under a HPWS which are not possible with a more unitarist conception of the employee-organization relationship found in existing research. For instance, and quite apart from the social exchange relationship that may be created by the firm, behavioral contexts that encourage intrapreneurial or ambidextrous behaviours may inadvertently expand employees' career options to pursue more entrepreneurial career choices on their own. This approach highlights the value of a conceptual framework like social cognitive theory for better understanding how the effects of HPWS work through employees.

This paper also establishes a closer connection between the fields of HRM and entrepreneurship, for which the points of intersection are only starting to be explored (Katz, Aldrich, Welbourne & Williams, 2006; Kaya, 2006). Kacperczyk

(2012) suggested that instead of a path towards entrepreneurship in the new venture creation sense, experience with an existing organization (enactive mastery) may instead lead an individual towards more intrapreneurial behaviours within that organization. This would represent a middle ground of sorts between the human resources and entrepreneurship literatures, suggesting that HPWS may assist in the formation of ESE, but that existing talent who develop such ESE may not always leave the organization. This raises an important boundary condition on the well understood relationship between ESE and entrepreneurial intentions and/or activity (Boyd & Vozikis, 1994; Fitzsimmons & Douglas, 2011; Krueger, 1993; Krueger *et al.*, 2000; Zhao *et al.*, 2005) suggesting, at least in the context of individuals transitioning from employment to entrepreneurship, that the effects of ESE may not always be positive, nor what was expected, particularly for their existing organization. As such, my findings help build a bridge between the disciplines of HRM and entrepreneurship and help to understand not only intrapreneurial activity but also how people might transition from employment to entrepreneurial careers.

Lastly, my results show how HPWS may offer competitive advantage (Barney, 1991), how they may facilitate career transitions from employment to entrepreneurship, and why they may not be as fully diffused in industry as otherwise expected (Kaufman, 2012). By helping to establish a behavioral context supportive of both incremental and radical creativity by the same employees, my results show how a HPWS can offer advantage over other more costly solutions like establishing different HR systems to perform these same functions. My

results also highlight the benefits and risks for firms that utilize a highly skilled workforce. While such employees have a stronger capacity to learn that may equip them to act more creatively on the job, their experiences in so doing can also be expected to develop efficacy beliefs in the domain in which such learning takes place. For intrapreneurial and ambidextrous firms, my study shows this leads to the development of ESE which raises an important retention issue for adopters of HPWS where there may be a flight risk among the most creative contributors to the organization. This possibility is not only consistent with the practices of many organizations who offer rewards tied to organizational performance to their most valued employees, but is also consistent with entrepreneurial research suggesting that most entrepreneurs use previous employment in an organization as a springboard into their own entrepreneurial careers (Audia & Rider, 2007; Astebro & Thompson, 2011; Dimov, 2010; Unger *et al.*, 2011). These considerations may in turn help to understand some of the reluctance among employers to more fully invest in HPWS practices (Kaufman, 2012) given that the benefits of general skill development in such forms as ESE accrue more directly to employees, which increases their marketability and makes them harder to retain.

Limitations & Future Research

My study possesses certain limitations, one of which is that my data consisted entirely of self-report measures. Given that key constructs such as ESE involve an individuals' self-assessment of their own perceived capability however, I felt self-report to be the best way to gather such data from participants.

Also, self-report measures may be the most appropriate source of data about HR practices as they are experienced by employees in an organization (Arthur & Boyles, 2007), especially given that the organization's intended HPWS may not fully overlap with what is implemented and even less with what is perceived by employees (Den Hartog, Boon, Verburg & Croon, 2013; Nishii & Wright, 2008).

As the data were collected at two time periods, I do not expect common method variance to be an issue, however I used several procedural remedies in addition to the previously noted statistical remedies to reduce the likelihood of response biases. These procedural remedies included separating related constructs in the survey as well as measuring the predictor and criterion variables at separate time periods. Another limitation present in the data is that each individual participant is from a different organizational setting, which has the potential to introduce "noise" into our empirical model. Having said that, I also suggest that this characteristic can be considered a strength of my study in that it makes it harder to explain variation among our study variables, suggesting the relationships shown are more generalizable.

The lack of connection found in this study between HPWS and adaptability should be studied further. In a manner consistent with attraction-selection-attrition theory (Schneider, 1987), the variance of my three-item measure of adaptability may have been attenuated due to the potential that a HPWS is as likely to attract and discourage employees who are more favorably disposed toward such systems as they are to help build a tolerance for change among such employees. Also the three items used in this study may not capture

the full range of possible adaptive behaviours that employees may be expected to display in a HPWS setting. Future research using a more robust measure of adaptability as well as a design better able to sort out whether HPWS attract or build employee adaptability would be helpful. In the spirit of growing interest in multi-level research, testing whether aggregated measures of individual's creative contributions and adaptability mediate the effects of unit level HPWS characteristics and unit performance would also be desirable. This research should also examine whether there is a relative advantage to the firm of having employees engaged in incremental or radical creativity and/or explore those contingencies where radical creative contributions offer advantage.

While I have treated HPWS as a one-dimensional construct following previous work (Chi & Lin, 2011; Datta, Guthrie & Wright, 2005; Gong, Chang & Cheung, 2010; Wei, Han & Hsu, 2010), and given my focus on measuring overall 'investment' in employees (Delery & Shaw, 2001) on behalf of the organization, future research may wish to examine whether certain components of a HPWS affect incremental vs. radical creativity differently given that some sub-components of HPWS may have differential effects on particular mediators and dependent variables (Takeuchi, Chen & Lepak, 2009). Also due to the study's design, I was not able to test the possibility of reverse causality alluded to above insofar as those with higher endowed talents for creativity, adaptability or even entrepreneurship may be drawn to organizations with more highly diffused HPWS and I suggest that this be considered in the design of future research.

Lastly, one of the messages stemming from my results is that organizations can shape – positively or negatively – the development of an employee's entrepreneurial self-efficacy. Therefore, also important to investigate further is whether higher ESE generated through a HPWS will lead to retention of talent (as would be of interest to strategic human resource management research) or to the exodus of talent (as would be of interest to entrepreneurship research). Regardless, there is a strong need for research that examines the role of individuals in intrapreneurship (Hitt, Ireland, Sirmon & Trahms, 2011) as well as the effects of such intrapreneurial activity on the career pathways of individuals (Corbett, Covin, O'Connor & Tucci, 2013) and this potential avenue for future research provides another unique pathway for the combination of the human resources/organizational behaviour and entrepreneurship literatures.

Conclusion

In this paper I highlight the inter-connection between the human capital and social exchange theory explanations of the knowledge, skill, ability and motivation enhancing aspects of a HPWS that are often left unstated in the literature. I also shed light on the subtle but complex relationship between specific and general human capital accumulation which follows two paths under a HPWS. Drawing on both human capital and social exchange theories, the first path is shown to arise from the application of employees' high general skills to firm-specific processes of value creation through incremental and radical creativity on the job. The second path draws on social cognitive theory to show how the experience of working creatively and adaptively can influence individual

cognitions, leading to career growth for employees through the more general acquisition of ESE. This research contributes to the growing connection between the fields of strategic human resource management and entrepreneurship. By developing a more nuanced understanding of skill accumulation and the development of ESE in a working population, we may be better able to predict the outcomes of such developments, including intrapreneurial and entrepreneurial career choices, which may lead to improved implementation of 'boundaryless' career pathways inside and outside existing organizations.

TABLE 3-1
Comparison of Measurement Models

Model	Factors	Chi-square	df	Change in cs	RMSEA	CFI	SRMR
1	Five factors: HPWS, incremental creativity, radical creativity, adaptability, ESE	1169.61	739		.04	.95	.05
2	Four factors: HPWS, incremental and radical creativity combined, adaptability, ESE	1632.70	743	463.09***	.06	.89	.07
3	Three factors: HPWS, incremental creativity, radical creativity and adaptability combined, ESE	1735.39	746	565.78***	.07	.88	.07
4	Two factors: HPWS, incremental creativity, radical creativity, and adaptability combined, ESE	2657.08	748	1487.47***	.09	.77	.12

*** $p \leq .001$

TABLE 3-2
Means, Standard Deviations, Scale Reliabilities and Correlations

	Variable	Mean	SD	1	2	3	4	5	6	7	8
1	ESE	2.65	.99	(.96)							
2	Age	44.63	10.41	-.07	(1)						
3	Gender	.63	.48	-.15**	-.06	(1)					
4	Org Tenure	7.90	6.87	-.01	.26**	-.14*	(1)				
5	HPWS	4.43	1.17	.12*	-.05	.08	.10	(.95)			
6	Inc Creativity	4.81	1.09	.31**	-.01	-.07	.06	.37**	(.93)		
7	Rad Creativity	3.86	1.22	.33**	-.04	-.11*	.10	.16**	.47**	(.90)	
8	Adaptability	5.13	1.08	.26**	.04	.08	-.07	.06	.27**	.13*	(.68)

N = 304. Internal consistency reliability co-efficients (alphas) appear in parentheses along the main diagonal. Significance tests are two-tailed.
$p \leq .05$; ** $p \leq .01$.

FIGURE 3-1 – PATH ANALYSIS MODEL

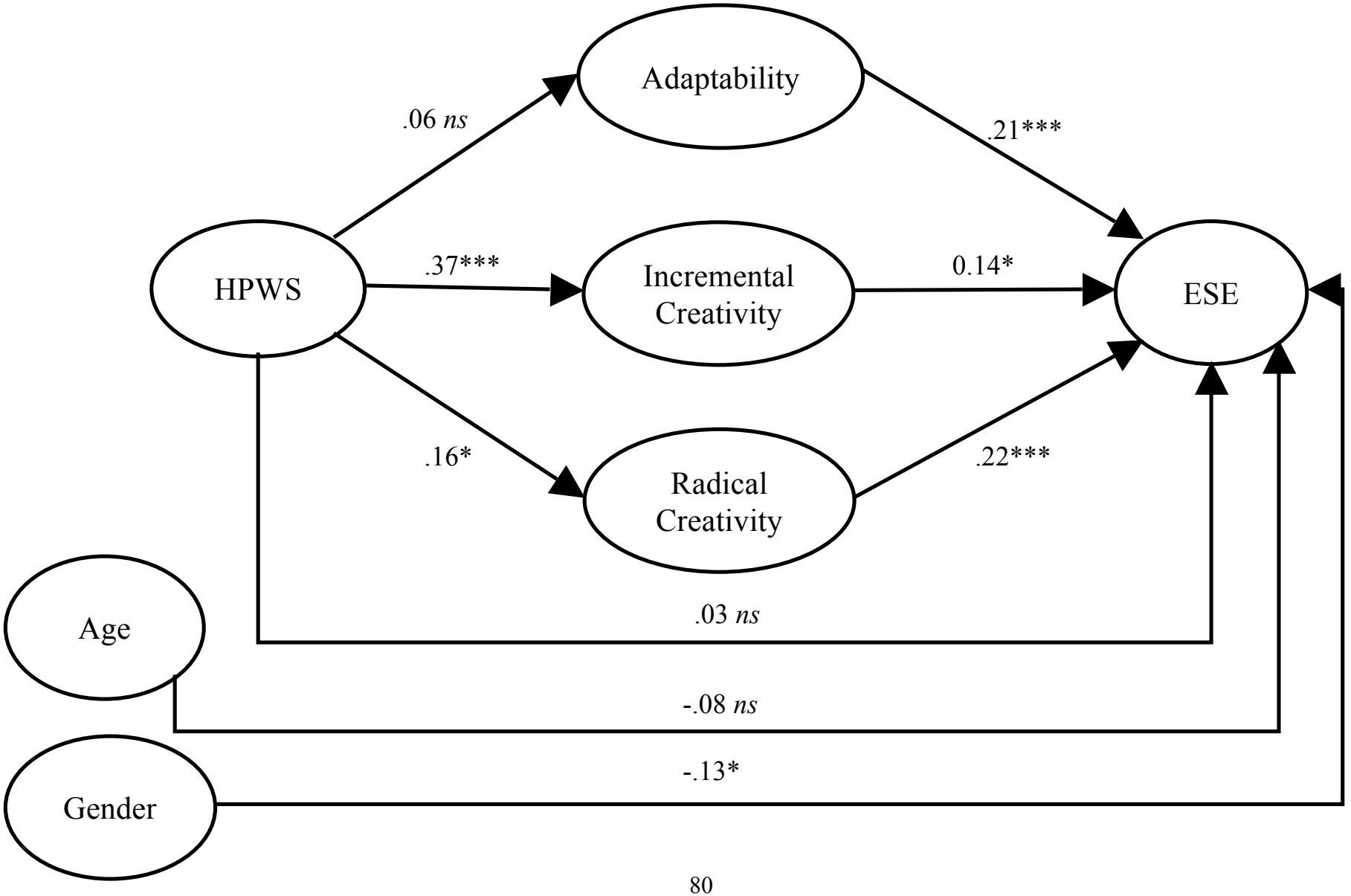

TABLE 3-3
Standardized Estimates and 95% Confidence Intervals for Total, Direct, Indirect and Specific Indirect Effects

	Total Effects				Direct Effects				Total Indirect Effects				Specific Indirect Effects			
Parameter	Estimate	Lower Bound	Upper Bound	*p*	Estimate	Lower Bound	Upper Bound	*p*	Estimate	Lower Bound	Upper Bound	*p*	Estimate	Lower Bound	Upper Bound	*p*
Direct Paths																
HPWS → ESE					0.03	-0.08	0.14	ns								
HPWS → ADAPT					0.06	-0.06	0.17	ns								
HPWS → INC CRE					0.37	0.26	0.48	***								
HPWS → RAD CRE					0.16	0.02	0.29	*								
AGE → ESE					-0.08	-0.18	0.02	ns								
GENDER → ESE					-0.13	-0.23	-0.02	**								
ADAPT → ESE					0.21	0.1	0.31	***								
INC CRE → ESE					0.14	0.01	0.27	*								
RAD CRE → ESE					0.22	0.1	0.34	***								
Mediated Paths																
HPWS → ESE	0.13	0.00	0.26	*	0.03	-0.08	0.14	ns	0.10	0.04	0.16	**				
HPWS → ADAPT → ESE													0.01	-0.01	0.04	ns
HPWS → INC CRE → ESE													0.05	0	0.1	*
HPWS → RAD CRE → ESE													0.03	0	0.07	ns

Note: N = 304. CIs for direct and indirect paths are based on standardized estimates, without bootstrap sampling (as MLM estimator was used).
HPWS – high performance work systems ESE = entrepreneurial self-efficacy; ADAPT = adaptability; INC CRE = incremental creativity; RAD CRE = radical creativity.
* p < .05. ** p < .01. *** p < .001.

REFERENCES

Aguinis, H., & Kraiger, K. (2009). Benefits of Training and Development for Individuals and Teams, Organizations, and Society. *Annual Review of Psychology, 60*, 451-474.

Andriopoulos, C., & Lewis, M.W. (2009). Exploitation exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organization Science, 20,* 696–717.

Arthur, J.B., & Boyles, T. (2007). Validating the human resources system structure: A levels-based strategic HRM approach. *Human Resource Management Review, 17,* 77-92.

Astebro, T., & Thompson, P. (2011). Entrepreneurs, jack of all trades or hobos? *Research Policy, 40(5),* 637-649.

Audia, P.G., & Rider, C.I. (2007). Entrepreneurs as organizational products revisited. In J.R. Baum, M. Frese & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 113-130). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist, 33,* 344-358.

Bandura, A. (1982). Self-efficacy mechanisms in human agency. *American Psychologist, 37(2),* 122-147.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York, NY: Freeman.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, Volume 52* (pp. 1-26). Palo Alto, CA: Annual Reviews Inc.

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal of Management, 38,* 9-44.

Bandura, A., Adams, N.E., Hardy, A.B., & Howells, G.N. (1980). Tests of the generality of self-efficacy theory. *Cognitive Therapy & Research, 4,* 39-66.

Barney, J.B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17,* 99–120.

Barney, J.B., & Wright, P.M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management, 37*, 31-46.

Becker, G.S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, *70(5)*, 9-49.

Benner, M.J., & Tushman, M.L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review, 28*, 238–256.

Bentler, P.M. (1988). Comparative fit indexes in structural models. *Psychological Bulletin, 107,* 238-246.

Blau, P. (1964). *Exchange and power in social life.* New York, NY: Wiley.

Boon, C., Den Hartog, D. N., Boselie, P., & Paauwe, J. (2011). The relationship between perceptions of HR practices and employee outcomes: examining the role of person–organisation and person–job fit. *International Journal of Human Resource Management*, *22*, 138–62.

Bowen, D.E., & Ostroff, C. (2004). Understanding HRM-firm performance linkages: The role of 'strength' of the HRM system. *Academy of Management Review, 29(2),* 203-221.

Boxall, P., Ang, S.H., & Bartram, T. (2011). Analysing the "black box" of HRM: Uncovering HR goals, mediators, and outcomes in a standardized service environment. *Journal of Management Studies*, *48*, 1504–32.

Boyd, N., & Vozikis, G. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory & Practice, 18(4),* 63-77.

Butts, M., DeJoy, D., Schaffer, B., Wilson, M. & Vandenberg, R. (2009). 'Individual reactions to high involvement work processes: Investigating the role of empowerment and perceived organizational support. *Journal of Occupational Health Psychology*, *14*, 122–36.

Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing, 13,* 295-316.

Chi, N.W., & Lin, C.Y. (2011). Beyond the high-performance paradigm: Exploring the curvilinear relationship between high-performance work systems and organizational performance in Taiwanese manufacturing firms. *British Journal of Industrial Relations, 49(3),* 486-514.

Chuang, C.H., & Liao, H. (2010). Strategic human resource management in service context: Taking care of business by taking care of employees and customers. *Personnel Psychology, 63,* 153-196.

Combs, C., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology, 59,* 501-528.

Corbett, A.C., Covin, J.C., O'Connor, G.C., & Tucci, C.L. (2013). Corporate entrepreneurship: State-of-the-art research and a future research agenda. *Journal of Product Innovation Management, 30(5),* 812-820.

Cox, L.W., Mueller, S.L., & Moss, S.E. (2002). The impact of entrepreneurship education on entrepreneurial self-efficacy. *International Journal of Entrepreneurship Education, 1(2),* 229-245.

Datta, D.K., Guthrie, J.P., & Wright, P.M. (2005). Human resource management and labor productivity: Does industry matter? *Academy of Management Journal, 48,* 135-145.

Delery, J.E. (1998). Issues of fit in strategic human resource management: Implications for research. *Human Resource Management Review, 8,* 289-309.

Delery, J.E., & Shaw, J.D. (2001). The strategic management of people in work organizations: Review, synthesis and extension. In G.R. Ferris (Ed.), *Research in Personnel and Human Resources Management, Vol. 20* (pp. 165-197). Greenwich, CT: JAI Press.

DeNoble, A.F., Jung, D.S., & Ehrlich, S.B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. In P. Reynolds, W. Bygrave, S. Manigart, C. Mason, G. Meyer, H. Sapienza & K. Shaver (Eds.), *Frontiers of entrepreneurship research (pp. 73-87).* Babson Park, MA: Babson College.

Den Hartog, D.N., Boon, C., Verburg, R.M., & Croon, M.A. (2013). HRM, communication, satisfaction and perceived performance: A cross-level test. *Journal of Management, 39(6),* 1637-1665.

Dimov, D. (2010). Nascent entrepreneurs and venture emergence: Opportunity confidence, human capital and early planning. *Journal of Management Studies, 47(6),* 1123 – 1153.

Duncan, R. (1976). The ambidextrous organization: Designing dual structures for innovation. In R.H. Killman, L.R. Pondy, & D. Sleven (Eds.), *The Management of Organization, Volume 1* (pp. 176-188). New York, NY: New Holland.

Fitzsimmons, J.R., & Douglas, E.J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing, 26(4),* 431-440.

Gibson, C.B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal, 47,* 209-226.

Gilson, L.L., & Madjar, N. (2011). Radical and incremental creativity: Antecedents and processes. *Psychology of Aesthetics, Creativity and the Arts, 5(1),* 21-28.

Gist, M.E. (1987). Self-efficacy: Implications for organizational behavior and human resources management. *Academy of Management Review, 12(3),* 472-485.

Gong, Y., Chang, S., & Cheung, S.Y. (2010). High performance work system and collective OCB: A collective social exchange perspective. *Human Resource Management Journal, 20,* 119-137.

Gong, Y., Law, K.S., Chang, S., & Xin, K.R. (2009). Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology, 94(1),* 263-275.

Gould, S. (1979). Characteristics of career planners in upwardly mobile occupations. *Academy of Management Journal, 22(3),* 539-550.

Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, *25*, 161-178.

Green, K.W., Wu, C., Whitten, D., & Medlin, B. (2006). The impact of strategic human resource management on firm performance and HR professionals' work attitude and work performance. *International Journal of Human Resource Management, 17,* 559-579.

Haynie, M., & Shepherd, D.A. (2009). A measure of adaptive cognition for entrepreneurship research. *Entrepreneurship Theory & Practice, 33(3),* 695-714.

Hitt, M.A., Ireland, R.D., Sirmon, D.G., & Trahms, C. (2011). Strategic entrepreneurship: Creating value for individuals, organizations and society. *Academy of Management Perspectives, 25(2),* 57-75.

Huselid, M.A. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal, 38*, 635-73.

Ireland, R.D., Hitt, M.A., & Sirmon, D.G. (2003). A model of strategic entrepreneurship. *Journal of Management, 29,* 137-154.

Ito, J.K., & Brotheridge, C.M. (2005). Does supporting employees' career adaptability lead to commitment, turnover or both? *Human Resource Management, 44(1),* 5-19.

Jensen, J.M., Patel, P.C., & Messersmith, J.G. (2013). High-performance work systems and job control: Consequences for anxiety, role overload, and turnover intentions. *Journal of Management, 39*, 1699-1724.

Jiang, K., Lepak, D.P., Hu, J., & Baer, J.C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal, 55*, 1264-1294.

Jiang, K., Takeuchi, R., & Lepak, D.P. (2013). Where do we go from here? New perspectives on the black box in strategic human resource management research. *Journal of Management Studies, 50*, 1448-1480.

Kacperczyk, A.J. (2012). Opportunity structures in established firms: Entrepreneurship versus intrapreneurship in mutual funds. *Administrative Science Quarterly, 57(3),* 484-521.

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: Towards a new synthesis. *Entrepreneurship Theory and Practice, 25(1),* 7-10.

Kaufman, B.E. (2012). Strategic human resource management research in the United States: A failing grade after 30 years? *Academy of Management Perspectives, 26*, 12-36.

Kaya, N. (2006). The impact of human resource management practices and corporate entrepreneurship on firm performance: Evidence from Turkish firms. *The International Journal of Human Resource Management, 17(12),* 2074-2090.

Korsgaard, M.A., Sapienza, H.J., & Schweiger, D.M. (2002). Beaten before begun: The role of procedural justice in planning change. *Journal of Management, 28,* 497-516.

Krause, S., Frese, M., Friedrich, C., & Unger, J. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work and Organizational Psychology, 14(3),* 315-328.

Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory & Practice, 18,* 5-21.

Krueger, N., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15(5-6),* 411-432.

Lavie, D., Stettner, U., & Tushman, M.L. (2010). Exploration and exploitation within and across organizations. In J. P. Walsh & A. P. Brief (Eds.), *Academy of Management annals***,** *4,* 109-155. Essex, UK: Routledge.

Lepak, D.P., & Snell, S.A. (2002). Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations. *Journal of Management, 28(4),* 517-543.

Liao, H., Toya, K., Lepak, D.P., & Hong, Y. (2009). Do they see eye to eye? Management and employee perspectives of high performance work systems and influence processes on service quality. *Journal of Applied Psychology, 94,* 371-391.

Lubatkin, M.H., Simsek, Z., Ling, Y., & Veiga, J.F. (2006). Ambidexterity and performance in small- to medium-sized firms: The pivotal role of top management team behavioral integration. *Journal of Management, 32*, 646–672.

Macky, K., & Boxall, P. (2007). The relationship between "high-performance work practices" and employee attitudes: An investigation of the additive and interaction effects. *International Journal of Human Resource Management, 18,* 537-567.

March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science, 2(1),* 71-87.

McGrath, R., & MacMillan, I. (2000). *The entrepreneurial mindset: Strategies for continuously creating opportunity in an age of uncertainty.* Cambridge, MA: Harvard Business School Press.

McMahan, G.C., Virick, M., & Wright, P.M. (1999). Alternative theoretical perspectives for strategic human resource management revisited: Progress, problems and prospects. *Research in Personnel & Human Resource Management, Supplement 4*, 99-122.

Mossholder, K.W., Richardson, H.A., & Settoon, R.P. (2011). Human resource systems and helping in organizations: A relational perspective. *Academy of Management Review, 36(1),* 33-52.

Muthen, L.K., & Muthen, B.O. (2012). *Mplus User's Guide (7th ed)*. Los Angeles, CA: Muthen & Muthen.

Nishii, L.H., Lepak, D.P., & Schneider, B. (2008). Employee attributions of the "why" of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology, 61,* 503-545.

Nishii, L.H., & Wright, P.M. (2008). Variability within organizations: Implications for strategic human resources management. In D.B. Smith (Ed.), *The people make the place: Dynamic linkages between individuals and organizations* (pp. 225-248). New York, NY: Lawrence Erlbaum Associates.

Patel, P.C.; Messersmith, J.G., & Lepak, D.P. (2013). Walking the tightrope: An assessment of the relationship between high-performance work systems and organizational ambidexterity. *Academy of Management Journal, 56*, 1420-1442.

Ployhart, R.E., & Moliterno, T.P. (2011). Emergence of the human capital resource: A multilevel model. *Academy of Management Review, 35,* 127-150.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., & Podsakoff, N.P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88(5),* 879-903.

Posthuma, R.A., Campion, M.C., Masimova, M., & Campion, M.A. (2013). A high performance work practices taxonomy: Integrating the literature and directing future research. *Journal of Management, 39(5),* 1184-1220.

Preacher, K.J., & Hayes, A.F. (2008). Asymptotic and resampling methods for estimating and comparing indirect effects. *Behavior Research Methods, 40,* 879-891.

Reeves, M., & Deimler, M. (2011). Adaptability: The new competitive advantage. *Harvard Business Review, July-August,* 135-141.

Sanders, K., Dorenbosch, L., & deReuver, R. (2008). The impact of individual and shared employee perceptions of HRM on affective commitment: Considering climate strength. *Personnel Review, 37(4),* 412-425.

Satorra, A., & Bentler, P.M. (1999). A scaled difference chi-square test statistics for moment structure analysis. http://preprints.stat.ucla.edu/260/260.pdf.

Schneider, B. (1987). The people make the place. *Personnel Psychology, 40,* 437-453.

Schuler, R.S., & Jackson, S.E. (1987). Linking competitive strategy with human resource management practices'. *Academy of Management Executive, 3*, 207-19.

Shane, S., & Venkatamaran, S. (2000). The promise of entrepreneurship as a field of study. *Academy of Management Review, 25(1),* 217-226.

Simsek, Z. (2009). Organizational ambidexterity: Towards a multilevel understanding. *Journal of Management Studies, 46*, 597–624.

Simsek, Z., Heavey, C., Veiga, J.F., & Souder, D. (2009). A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes. *Journal of Management Studies, 46*, 864–894.

Sorensen, J.B. (2002). The strength of corporate culture and the reliability of firm performance. *Administrative Science Quarterly, 47,* 70-91.

Takeuchi, R., Chen, C., & Lepak, D. (2009). Through the looking glass of a social system: Cross-level effects of high-performance work systems on employees' attitudes. *Personnel Psychology, 62,* 1-29.

Takeuchi, R., Lepak, D.P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high-performance work

systems and the performance of Japanese organizations. *Journal of Applied Psychology, 92*, 1069-1083.

Tierney, P., & Farmer, S.M. (2011). Creative self-efficacy development and creative performance over time. *Journal of Applied Psychology, 96(2),* 277-293.

Tushman, M.L., & O'Reilly, C.A. III. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review, 38,* 8–30.

Unger, J., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytic review. *Journal of Business Venturing, 26(3),* 341-358.

Wang, M., Zhan, Y., McCune, E., & Truxillo, D. (2011). Understanding newcomers' adaptability and work-related outcomes: Testing the mediating roles of perceived P-E fit variables. *Personnel Psychology, 64,* 163-189.

Wei, Y.C., Han, T.H., & Hsu, I.C. (2010). High-performance HR practices and OCB: A cross-level investigation of a causal path. *The International Journal of Human Resource Management, 21(10),* 1631-1648.

Wu, P.C., & Chaturvedi, S. (2009). The role of procedural justice and power distance in the relationship between high performance work systems and employee attitudes: A multilevel perspective. *Journal of Management, 35(5),* 1228-1247.

Wu, C., McMullen, J.S., Neubert, M.J., & Yi, X. (2008). The influence of leader regulatory focus on employee creativity. *Journal of Business Venturing, 23,* 587-602.

Youndt, M.A., Snell, S.A., Dean, J.W. Jr., & Lepak, S.P. (1996). Human resource management, manufacturing strategy and firm performance. *Academy of Management Journal, 39,* 836-866.

Zacharatos, A., Barling, J. & Iverson, R.D. (2005). High-performance work systems and occupational safety. *Journal of Applied Psychology*, 90, 77–93.

Zhao,H., Seibert, S.E., & Hills, G.E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology, 90(6),* 1265-1272.

CHAPTER 4

INTENTIONALITY TO BECOME AN ENTREPRENEUR: IS IT AS SIMPLE AS APPROACH VS. AVOIDANCE?

In today's world of 'boundaryless careers' (Arthur & Rousseau, 1996), the concept of self-efficacy with its known influences on the development of individual's career-related interests, goals and behaviours (Lent, Brown & Hackett, 1994) assumes considerable importance (Betz, 2000). Defined as the cognition that one believes they are able to undertake an activity successfully (Bandura, 1977), self-efficacy can be a powerful motivational force in career choice decisions, often conceptualized as motivating individuals to 'approach' career opportunities for which they have higher levels of self-efficacy and 'avoid' those for which they have lower levels of self-efficacy (Wood & Bandura, 1989).

One context in which self-efficacy serves as an important motivational mechanism is the entrepreneurial context, where a domain specific measure of self-efficacy called entrepreneurial self-efficacy (ESE) has been developed. ESE refers to the belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen, Greene, & Crick, 1998; DeNoble, Jung, & Ehrlich, 1999). Prior researchers have examined the relationship between ESE and a wide variety of entrepreneurial outcomes. Of particular focus to this study is the linkage between ESE and entrepreneurial intentions (EI) which may be defined as the intention of an individual to start a new business venture some time in the future (Thompson, 2009). EI has consistently been found to have a robust, positive relationship with ESE (Boyd & Vozikis, 1994; Fitzsimmons & Douglas, 2011; Krueger, 1993;

Krueger, Reilly & Carsrud, 2000; Zhao, Seibert & Hills, 2005), a finding commonly interpreted as support for the argument that individuals high and low on ESE approach and avoid entrepreneurial careers, respectively.

In this paper, I add nuance to the approach-avoidance rationale by arguing that its focus toward or away from entrepreneurship as a career choice diverts the field's attention from other settings in which the entrepreneurial skills of the individual may be incubating, developing or even being deployed as a source of advantage through intrapreneurial activity (eg. Bird, 1988; Kreuger, 1993; Kreuger, Reilly & Carsrud, 2000). The emerging field of intrapreneurship, with its focus on the application of entrepreneurial thinking in an employment setting (Amo & Kolvereid, 2005; Antoncic & Hisrich, 2001) implies one such alternative setting – paid employment. In fact, employment in existing organizations is often a key source of early development for future entrepreneurs (Audia & Rider, 2007) where it is not unrealistic to consider individuals will develop their ESE. This begs the question of when or at what point employed individuals with higher levels of ESE stop 'avoiding' entrepreneurship and start 'approaching' it? To the extent that ESE reflects an employees' belief that they can undertake more owner-like duties and responsibilities that can be valuable to a firm (e.g., taking initiative etc.), one might conversely ask whether employed individuals high on ESE ever 'avoid' entrepreneurship in the form of venture creation altogether and stay in a paid employment setting where they have the possibility of engaging in intrapreneurial activity indefinitely?

In the case of a paid employee considering a career transition into entrepreneurship, answers to these questions are importantly limited by studying a criterion measure like EI alone, as the intentionality to pursue an entrepreneurial career will be revealed as much by the individual's motivation to approach this career choice as by their motivation to leave the current setting (Colarelli, 1984). Despite this, existing studies that seek to predict and explain EI do not simultaneously model the low staying intention (SI) implicated by this choice despite the potential bias in estimates of EI when failing to do so. This failure may explain why intentions research is commonly criticized for not being sufficiently predictive of actual behavioral outcomes (Ajzen, 1991; Krueger, 1993), the possibility of which is lessened by a researcher's inability to operationalize a measure of intentionality that is more proximal to the behavior it is meant to predict, something a joint consideration of EI and SI can help remedy (Bird, 1992).

Thus, the aim of the present paper is to jointly estimate the effects of demographic characteristics and ESE on four profiles of career intentionality implicated by cross-classifying EI and SI. These profiles are: incubating entrepreneur (high EI, high SI); imminent entrepreneur (high EI, low SI); employed stayer (low EI, high SI); and employer leaver (low EI, low SI). The two most former categories can be understood as differing in their levels of preparedness toward entrepreneurship (Bird, 1988), a distinction that adds nuance to understanding how a positive ESE-EI relationship may be misunderstood to lead to approach motivation when it might well be embedded in a person who is

also avoiding this career choice with a high SI as would be the case with an incubating entrepreneur. In addition to contributing to construct clarity (Suddaby, 2010) around entrepreneurial intentionality and how a key determinant - ESE - may be related to it, this framework offers promise for understanding gender differences in entrepreneurship which have been of interest to the field ever since researchers discovered male-female differences in entrepreneurial self-efficacy (Scherer, Brodzinski, & Wiebe, 1990), intentions (Zhao et al., 2005), and status (Moore & Buttner, 1997). By controlling for the socializing effect of ESE that may exist between incubating and imminent entrepreneurs, this research can help shed light on the relative effects of this versus other influences on gender differences in entrepreneurship.

THEORETICAL BACKGROUND & HYPOTHESES

Theory and research exploring the frontiers between paid employment and entrepreneurship is just beginning and raises exciting possibilities through the cross-fertilization of ideas between the fields of human resource management and entrepreneurship. Within this specialization, the focus of much human resource management research interest is on how employees can be encouraged to pursue more intrapreneurial career choices (Hayton & Kelley, 2006; Schmelter, Mauer, Börsch & Brettel, 2010) as well as the factors distinguishing the employed from self-employed, whereas for entrepreneurship researchers it is about how individual and situational differences between employees might better prepare individuals for career choices in entrepreneurship. Absent from the research in

this emerging area of specialization thus far has been a more person-centered discussion of the individuals' career choices transcending these two options.

What little research that has been done in this area by human resource management scholars has typically contrasted the employed from self-employed, highlighting the role of individual differences like cognitive ability (Eren & Sula, 2012) and personality (Shane, Nicolaou, Cherkas, & Spector, 2010) as well as situational factors like education and either family business background (Eren & Sula, 2012) or work experience (Fairlie & Robb, 2007). None of this research, however, is well connected with the richer lessons learned from the voluminous research conducted on this same topic by entrepreneurship scholars. Based on this research, it has been concluded that individual attributes and situational characteristics are often too far removed from the career choice decisions they are commonly hypothesized to explain to predict them with much certainty (Baum & Locke, 2004; Mitchell, Busenitz, Bird, Marie Gaglio, McMullen, Morse, & Smith, 2007; Rauch & Frese, 2007; Zhao & Seibert, 2006; Zhao, Seibert, & Hills, 2005; Zhao, Seibert, & Lumpkin, 2009). Researchers in this tradition have called for greater attention to more proximal motivational mechanisms (Hirschi, Lee, Porfeli, & Vondracek, 2013) to understand entrepreneurial career choice, of which the concept of self-efficacy, the focus of this study, has figured most prominently.

ESE and Entrepreneurial Career Choice Intentionality

The broader construct of self-efficacy links cognitive, behavioural and environmental influences in a dynamic fashion, thereby allowing individuals to form beliefs about their ability to perform specific tasks (Bandura, 1977; 1986). In

his initial work on the construct of self-efficacy, Bandura (1977) found that expectations of personal efficacy determined whether, how and for how long a particular behaviour would be initiated. Specifically he found that people process, weigh, and integrate diverse sources of information concerning their capabilities in a particular area and that they regulate their behaviour accordingly (Bandura, 1977; 1997). Given its importance in cementing if a person feels they can successfully engage in a task, self-efficacy has been found to have important consequences for career choice (Betz, 2000; 2004). Further to this, Bandura (1977; 1997) suggested that self-efficacy has behavioural consequences in organizational settings; specifically so-called 'approach' vs. 'avoidance' behaviours, which have implications for the career choices of individuals (Bandura, 1988). Wood & Bandura (1989) found that individuals were more likely to 'approach' work settings for which they had higher levels of efficacy and 'avoid' those for which they had lower levels of efficacy and thus are likely to orient towards the career choices to which they feel most efficacious (Betz, 2004).

Derived from the broader construct of self-efficacy (Bandura, 1977), entrepreneurial self-efficacy (ESE) refers to the belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen, Greene, & Crick, 1998; DeNoble, Jung, & Ehrlich, 1999). An extensive amount of research, based largely on the conceptual structure for intentionality provided by social cognitive theory (Bandura, 1986) as well as the theory of planned behaviour (Ajzen, 1991; Krueger & Carsrud, 1993; Krueger, Reilly & Carsrud, 2000) with its focus on perceived behavioral control

and attitude toward the act, has informed the ESE-EI relationship. Consistent with the view that domain-specific intentions are importantly influenced by the individuals' perceptions of abilities (i.e. self-efficacy) relevant to those same domains (Bird, 1988; Krueger, Reilly & Carsrud, 2000), these works have largely supported the view that individuals with higher levels of ESE are not only more likely to approach career choices in entrepreneurship through higher levels of EI but that such motivations are a key determinant of other forms of entrepreneurial activity as well (Boyd & Vozikis, 1994; Chen, Greene & Crick, 1998; DeNoble, Jung, & Ehrlich, 1999; Fitzsimmons & Douglas, 2011; Jung, Ehrlich, DeNoble & Baik, 2001; Krueger, 1993; Krueger, Reilly & Carsrud, 2000; Zhao, Seibert & Hills, 2005). I therefore expect that people with higher levels of ESE will evidence higher levels of entrepreneurial intentionality.

H1: *ESE is positively related to EI.*

Of course, one of the criticisms of intentions research is that it does not reflect actual behavior, something a whole host of research related to the theory of planned behaviour has attempted to address in a variety of different domains by showing that intentionality is one of the strongest predictors of actual behaviour (Ajzen, 1991; Ajzen & Fishbein, 1980; Krueger & Carsrud, 1993; Shaver & Scott, 1991). In the case of ESE, the intentions-behaviour linkage finds further support in research showing that beyond this relationship, individuals with higher levels of ESE are more likely to initiate and persist with actual behaviours related to new venture creation (Anna, Chandler, Jansen & Mero, 1999; Baum, Locke & Smith, 2001; Baum & Locke, 2004; Hmieleski & Corbett, 2008; Sequeira, Mueller &

McGee, 2007). Yet while the link between ESE and EI has been shown to be strong and robust, the relationship between ESE and SI is rarely if ever studied, despite the fact that empirical support for a positive link in the former relationship would appear to suggest a negative link should be found in the latter relationship. Such a prediction would not only be consistent with the strong intentions-behaviour linkage predicted by the theory of planned behaviour, but it would also appear consistent with the long history of use of this theory in studies of job staying or leaving intentions (Boswell, Zimmerman & Swider, 2012) showing these criteria predicted by individuals' efficacy for their jobs as well as for their labour market alternatives (Song, Wanberg, Niu & Xie, 2006; Van Hooft, Born, Taris & Van Der Flier, 2005; Wanberg, Glomb, Sing & Sorenson, 2005). If ESE increases one's likelihood of approaching entrepreneurship, it should also lead to avoidance of career choices less consistent with those alternatives; that is, to lower SI in the current organizational setting.

H2: *ESE is negatively related to SI.*

Gender and Entrepreneurial Career Choice Intentionality

Gender is an important demographic variable that should be considered with respect to the impact of ESE on entrepreneurial career choice. Several studies show that women are less likely to intend (Zhao *et al.,* 2005) as well as attain status (Moore & Buttner, 1997) as an entrepreneur in comparison to men. Women are also less likely to actually be entrepreneurs in a majority of countries, including those in North America (Kelley, Brush, Greene & Litovsky, 2011). A prevalent theme in the explanation of such differences resides in the different

socialization experiences of women and men, which is one possible explanation for why women have also been found to exhibit lower levels of ESE (Scherer *et al.,* 1990). Indeed, Hackett & Betz's (1981) early work on self-efficacy applied to career choice implicated the lower self-efficacy of women for math and sciences as the key mechanism behind why women are less likely to 'approach' careers in these fields. If, as Jennings & Brush (2013) suggest, entrepreneurship tends to be portrayed as a stereotypically masculine endeavor, this intimates that while women may be less likely to approach an entrepreneurial career as operationalized by EI in comparison to a man, this difference should be at least partially mediated by ESE. By way of comparison, meta-analytic evidence suggests little if any differences in male and female staying intentions (Griffeth, Hom & Gaertner, 2000).

H3: *Women will have (a) lower levels of EI that (b) are partially mediated by ESE.*

H4: *Women and men will not differ in job staying intentions.*

Intention Profiles - The Next Frontier in Entrepreneurial Career Choice

Consistent with the approach-avoidance continuum reflected in the literature, the argument that has been assumed so far is that entrepreneurial approach implies avoidance of employment. However, there are at least two reasons to question this assumption. First, most entrepreneurs cite paid employment as formative to their development (Audia & Rider, 2007), not to mention industry and work experience have long been regarded as important preparation for starting new ventures and succeeding in them (Astebro &

Thompson, 2011; Dimov, 2010; Unger, Rauch, Frese & Rosenbusch, 2011). Thus, there may well be a tipping point for ESE accrual in a work setting prior to which the individual may prefer the security of a familiar organizational environment (Zellweger, Sieger & Halter, 2011) as they develop the entrepreneurial competencies needed to eventually pursue their own venture.

Second, while the entrepreneurship literature has traditionally found employment in mature organizations to be negatively related to entrepreneurial activity or behaviour (eg. Dobrev & Barnett, 2005; Shane & Venkatamaran, 2000; Sorensen, 2007), work by Kacperczyk (2012) indicates that some of these prior findings may be explained by the fact that employees in these settings turn to intrapreneurship in place of entrepreneurship, an outcome which has not been adequately theorized or measured in existing research. Although definitions of intrapreneurship have varied (Sharma & Chrisman, 1999), the broadest sense of the concept envisions entrepreneurship within existing organizations, whereby individuals behave in ways that result in the pursuit of new opportunities, the creation of new business ventures, and/or in the development of new products, services, administrative processes and innovation (Antoncic & Hisrich, 2001). The continuation of paid employment through intrapreneurial work, rather than the pursuit of venture creation, may allow employees who are drawn to entrepreneurship, and who have built considerable levels of ESE in the course of their jobs, the opportunity to engage in entrepreneurial behaviour within an existing organization, or to be 'intrapreneurial'. Related to this point, some measure of ESE may even be advantageous and promoted by employers insofar as

it equips the employee with the ability to think and act more like an owner, contributing value in such ways as exercising initiative and taking responsibility (Barney & Wright, 1998; Delery & Shaw, 2001; Youndt, Snell, Dean & Lepak, 1996).

While some research conceptualizes entrepreneurial career choice as a decision between competing alternatives (Douglas & Shepherd, 2000; Levesque, Shepherd & Douglas, 2002; Carter, Gartner, Shaver & Gatewood, 2003), it is much more common to operationalize measures of intention, status or success as sole outcomes independent of such alternatives. As suggested by the above discussion, an alternative not previously considered in the EI literature, and which is hard to reconcile with approach-avoidance, is that higher levels of ESE and EI in employment settings may be accompanied by high intentions to remain employed for whatever reason. One manner of illuminating the issue is to examine the influence on EI and SI concurrently, which as depicted in Figure 4-1 leads to four profiles of entrepreneurial intentionality: incubating entrepreneur (high EI, high SI); imminent entrepreneur (high EI, low SI); employed stayer (low EI, high SI); and employed leaver (low EI, low SI).

Insert Figure 4-1 about here

---

(1) Incubating Entrepreneur

Incubating entrepreneurs are those who demonstrate high levels of both EI and SI. Torn between careers in entrepreneurship and paid employment, these

individuals may either be engaged in intrapreneurial activities for their present employer or may not yet have reached the tipping point needed to pursue a career in venturing, preferring to continue to develop their entrepreneurial competencies for the time being.

(2) Imminent Entrepreneur

Imminent entrepreneurs have high EI and low SI, demonstrating an intentionality to engage in the new venture creation form of entrepreneurial activity by showing a more present readiness to leave the current employment setting. This category is closest to the typical notion of an entrepreneurial intender poised to make the leap into actual entrepreneurial activity.

(3) Employed Stayer

Employed stayers are those individuals who have low EI and high SI. These individuals have no career interest in entrepreneurial activity through new venture creation, preferring the security of the status quo in paid employment with their existing organization.

(4) Employed Leavers

Employed leavers are those individuals who have low EI and low SI. These individuals are neither looking to engage in new venture creation type activities nor willing to remain employed in their existing employment, seeing their career move in the direction of employment in a new organizational setting.

As a common point of comparison relative to the other three categories whose career intentions are more solidly situated in an employed setting, imminent entrepreneurs serve as the reference category in the hypotheses to

follow. Building on the ideas of 'approach' vs. 'avoidance' theorized in the literature (Wood & Bandura, 1989), I expect approach motivation encapsulated in ESE to be highest for imminent entrepreneurs relative to all other categories, including incubating entrepreneurs for whom career intentionality in entrepreneurship is mixed.

H5a: *Higher levels of ESE will reduce the likelihood of being an incubating relative to imminent entrepreneur.*

H5b: *Higher levels of ESE will reduce the likelihood of being an employed stayer relative to imminent entrepreneur.*

H5c: *Higher levels of ESE will reduce the likelihood of being an employed leaver relative to imminent entrepreneur.*

Whereas gender differences were not expected to co-vary with SI alone or only partly with EI after controlling for ESE, the joint consideration of EI and SI through career profiles offers at least one reason to expect gender differences. Specifically and as suggested by the gender discrimination literature, if women have fewer labour market opportunities then men notwithstanding similar human capital endowments (Gunderson, 1989), then they may be more likely to approach the incubating relative to imminent entrepreneur career choice category, where their chances of success may be perceived to be higher and risk of failure lower.

H6: *Women are more likely to be incubating relative to imminent entrepreneurs.*

METHODS

Design & Sample

Data for this study were collected from an online survey administered to a research panel at two time points in 2011. Participants were recruited by Cint (www.cint.com), an international organization that provides access to a research-quality survey panel of over 7 million individuals who receive modest compensation for completing online surveys for a variety of purposes. Cint distributed email invitations on my behalf, and provided unique identifiers to allow me to match survey responses at two points in time, while ensuring that respondents remained anonymous. Data for several studies were collected at two points of time. At Time 1, 10,613 subjects were solicited by email invitation, yielding 6,219 responses (58.6% response rate). Of those 6,219 respondents, 1,979 declined participation prior to visiting the survey website and 2,335 chose not to participate after visiting the survey website. Of the 2,104 people (19.8%) who consented to participate and subsequently received access to my questionnaire, 1,238 participants were screened out by my eligibility criteria, 238 people withdrew and 628 participants completed the survey at Time 1 (74.0% completion rate among consenting, eligible participants). These criteria included that the participant must have been working full time and have been at their current employer for a minimum of one (1) year, that they be a minimum age of twenty-five (25) years, that they were not part of a union and finally that they did not supervise others. Three months later, at Time 2, the 628 subjects from Time 1 were invited to complete the Time 2 survey, for which completed responses for

310 participants were received. To keep employment experiences as uniform as possible, I excluded subjects who had moved into supervisory roles or changed organizations at Time 2, as well as those older than 67 years of age, which left me with 304 completed, matched surveys (a matched response rate of 49.4%). Participants in the final sample were therefore permanent, non-union, non-supervisory employees who had been with their current employer in the for-profit service industry for at least one year and were age 25 to 67. The average age of participants was 44.8 years and 63% of the sample was female, with an average organizational tenure of 7.9 years. Although the data was collected in such a manner (i.e. longitudinally) as to enable me to attempt to establish the temporal precedence of cause before effect in the relationships tested as well as to reduce common method variance, it should be noted that with the exception of demographic characteristics, all data used for the current investigation was collected at Time 2.

Measures - Time 1

Demographic characteristics

Information on the demographic characteristics of employees were collected at Time 1 to enable control for potential sources of variation due to factors such as gender (1 = female; 0 = male) as well as age measured in years.

Measures – Time 2

Entrepreneurial Self-Efficacy

ESE was measured using the ten-item 'Entrepreneurial Self-Efficacy Scale' developed by Cox et al. (2002). Example items include 'conceive of a

unique idea for a business' and 'convince others to invest in your business'. Participants were asked how confident they were, at the moment asked, in their ability to perform each of the ten tasks on a five-point Likert scale ranging from '1 = not at all confident' to '5 = extremely confident'. This scale showed a high internal consistency with a Cronbach's alpha reliability coefficient of .96. Please refer to Appendix B for a complete listing of items.

Entrepreneurial Intentions

EI was measured using a six-item scale developed by Thompson (2009). Example items include 'read books on how to set up a firm' and 'plan to start your own business'. Each was measured using a six-point Likert scale ranging from '1 = very untrue' to '6 = very true'. The alpha reliability coefficient for this scale was a very high .97.

Staying Intentions

Items used to measure SI were based on a three-item scale by Colarelli (1984). Items included "If I have my own way, I will be working for this organization one year from now", "I rarely think of leaving my organization" & "I am not planning to search for a new job in another organization during the next 12 months". Participants were asked to rate their agreement with each item on a seven-point Likert scale ranging from '1 = strongly disagree' to '7 = strongly agree'. This variable had a very high reliability coefficient of .89.

RESULTS

Preliminary Analyses

Before testing the hypotheses, I first evaluated the distinctiveness of the study variables through a series of confirmatory factor analysis (CFA) procedures. I report results using a chi-square statistic for overall model fit, the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR). Three variables were employed in the study: entrepreneurial self-efficacy (ESE), entrepreneurial intentions (EI) and staying intentions (SI). I compared two alternative models with the baseline three-factor model. As shown in Table 4-1, Model 1 (baseline three-factor model) fit the data best and provided substantial improvement in fit indexes over the alternative models (Models 2-3), which included two- and one-factor models respectively, thereby providing support for the discriminant validity of each of the three-factors included in the model.

Insert Table 4-1 about here

Descriptive Statistics

The means, standard deviations, reliability coefficients, and correlations for all study measures are provided in Table 4-2. The reliability of all measures is well within accepted practice and the correlations between all variables are within standard ranges. Consistent with Hypothesis 1 but not 2, ESE demonstrates a significant positive relationship to EI but is not significantly related to SI. Table

4-3 shows OLS regression results for analyses in which EI and SI are regressed separately on each of my independent variables. Contrary as well to Hypothesis 3 but in support of Hypothesis 4, no gender differences are found to predict EI or SI. These outcomes are not unexpected and provide impetus to examine the relationship of ESE and gender differences across each of the proposed intention profiles.

Insert Table 4-2 about here

Insert Table 4-3 about here

Intention Profiles

Four intention profiles were extracted using k-means cluster analysis. Descriptive statistics including means and cluster size (n) are presented in Table 4-4. K-means clustering is an empirically-based clustering technique where the number of clusters is determined in advance by the researcher, guided by underlying theory. The number of clusters I specified was guided by the 2 x 2 profile categorization outlined in Figure 4-1, that is based on high and/or low levels of EI and SI. In this context, 'high' denotes those with an above average mean score on the particular intention construct, while 'low' denotes those with a below mean average score. As previously discussed, the four profiles constructed were: incubating entrepreneur (high EI, high SI; n=66); imminent entrepreneur

(high EI, low SI; n=42); employed stayer (low EI, high SI; n=145); and employed leaver (low EI, low SI; n=51). Two additional constructions of the profiles were also made using the midpoints of the EI and SI scales as reference points. While the direction of relationships based on these alternative constructions was not affected, their robustness in particular instances was. Please see Appendix D for further details on these alternative specifications.

Insert Table 4-4 about here

Because the four intention profiles are categorical, I analyzed them using a multinomial logistic regression (MLOGIT) procedure. This analytic method uses the total sample size across all four profile group membership categories and has an advantage in terms of statistical power compared to running a series of three separate binomial regressions. The MLOGIT regression coefficients (*B*) can be converted to odds ratios (OR) using the formula OR = Exp(*B*). For example, an OR value of 2.54 means that an additional unit increase in the predictor increases the odds of the dichotomous outcome by 154% whereas an OR value of .47 means the predictor reduces the probability of the outcome by 53%. Coefficients are interpreted relative to a reference category, which I chose to be the 'imminent entrepreneur' as this category is unlike the others in its readiness to pursue an entrepreneurial career outside of the employment relationship.

Results of the fully specified MLOGIT model are shown in Table 4-5 and show that the three predictor model is statistically significant, with a -2 Log

Likelihood coefficient of 690.291 ($\chi 2 = 61.887$, df = 9, $p \leq .001$). Moreover, the Nagelkerke Pseudo R2 indicated that the model accounted for approximately 20% of the total variance in category memberships being predicted. Consistent with Hypotheses 5b and 5c, respectively, a one unit increase in ESE reduces the odds of being an employed stayer relative to imminent entrepreneur by 53% ($B = -.76$, OR = .47, $p < .01$) while the same unit change reduces the odds of being an employed leaver relative to imminent entrepreneur by 62% ($B = -.(76$, OR = .38, $p < .01$). Contrary to Hypothesis 5a, ESE showed no significant differences between incubating and imminent entrepreneurs. Lastly, consistent with Hypothesis 6, the odds of being an incubating relative to imminent entrepreneur was 154% higher for women relative to men ($B = .93$, OR = 2.54, $p < .05$).

Insert Table 4-5 about here

DISCUSSION

Building off of the 'approach' vs. 'avoidance' conceptualization of Bandura's work on self-efficacy, the current study explores how the presence of ESE among employed individuals translates into an intentionality to pursue an entrepreneurial career, relative to other employment options. Unlike prior studies which examine EI as a separate point of reference for pursuing a career path in entrepreneurship, I combine this measure with SI and through the use of cluster analysis create four profiles of career choice intentionality: incubating entrepreneur (high EI, high SI); imminent entrepreneur (high EI, low SI);

employed stayer (low EI, high SI); and employed leaver (low EI, low SI). My MLOGIT analysis across the four profile groups shows that this methodology reveals nuances in ESE-EI relations that go undetected when this relationship is studied in isolation. Specifically, while higher levels of ESE lead individuals to approach entrepreneurship by increasing the probability of being an imminent entrepreneur relative to employed stayer or leaver, only gender differences distinguish incubating from imminent entrepreneurs, with women more likely to be in the former category. That is, employed woman and men are more likely to approach entrepreneurship through the incubating and imminent categories, respectively, despite there being no significant differences in ESE across these two choice categories which differ considerably in terms of SI.

Theoretical Implications & Future Research

My results call for a reconsideration of what it means to 'approach' vs. 'avoid' entrepreneurial career choices when studied from the vantage point of individual intentions among employed individuals. My findings show that a significant element among those with a high EI who would normally be thought to be approaching an entrepreneurial career choice are equally well avoiding this same choice through a high SI. The equally strong impact of ESE across those with high levels of EI but differing levels of SI suggest ESE may be a necessary but insufficient condition for transitioning from employment to entrepreneurship. Assuming that imminent entrepreneurs are more prepared to become actual entrepreneurs, perhaps there is something in their environment that enables them to 'act on' their ESE, which is not currently present in the case of incubating

entrepreneurs. This would be consistent with the definition of entrepreneurship as lying at the nexus of the individual and opportunity highlighted by Shane and Venkatamaran (2000). Conversely, incubating entrepreneurs might well be employed in intrapreneurial settings which develop their entrepreneurial competencies and career aspirations, but not to the point of enticing the pursuit of a venture because the individual may be too averse to such a risk (Brockner, Higgins and Lowe, 2004), less able to recognize opportunities, or some other factor. Further studies of the individual differences (e.g., ability to recognize opportunities, self-regulatory traits) and situational characteristics (e.g., working conditions, nature of work performed) distinguishing incubating from imminent entrepreneurs would help sort out these differences.

Gender and Intentionality

As gender differences between the two categories of incubating and imminent entrepreneurs remain after controlling for ESE, this same opportunity reasoning may explain this finding. Prior work on gender differences related to the push vs. pull or necessity vs. opportunity driven motives for entrepreneurial career choice may help shed some light on this result, by demonstrating that women are more likely to be pushed into, or engage in necessity entrepreneurship than men (Brush, 1990; Shapero & Sokol, 1982). My finding that women were more likely than men to be incubating vs. imminent entrepreneurs suggests that perhaps these women haven't yet reached the precipice from which they could be 'pushed' into entrepreneurship, again confirming the necessity of future research examining potential personal and situational variables that may lead women to be

more likely to be in this category in the first place that reach beyond simple differences in ESE. This supports a call by Jennings & Brush (2013) for more research into female corporate entrepreneurs while at the same time lending credence to their observation that one of the contributions of the women's entrepreneurship literature is that it recognizes and acknowledges entrepreneurship as a gendered phenomenon.

Intrapreneurial Cognitions as Part of Entrepreneurial Career Choice

My results suggest that the construct of a career intention can be made more precise by measuring its intensity relative to an available alternative, rather than simply as a stand-alone construct. Supporting the notion of alternative outcomes of rising levels of ESE gained in employment, Douglas & Fitzsimmons' (2013) recent work on intentions in an entrepreneurial context explored intrapreneurial intentions as a construct distinct and separate from entrepreneurial intentions. They found significant positive relationships between ESE and both entrepreneurial and intrapreneurial intentions, although ESE had both a higher level of significance as well as a greater effect size for entrepreneurial intentions as compared to intrapreneurial intentions. This adds to the findings of Honig (2001), Monsen, Patzelt & Sacton (2011) and Parker (2011), all of whom note that establishing differences between nascent entrepreneurs and nascent intrapreneurs is of significant theoretical and empirical interest. This study contributes to that body of knowledge by extending how we theorize about intentionality and mapping my profiles onto Douglas and Fitzsimmons' (2013)

measure of intrapreneurial intentionality would help clarify the career preferences of incubating entrepreneurs.

Employment Experience as Part of the Process of Entrepreneurial Career Choice

Given the importance of prior employment experience in starting and sustaining entrepreneurial career choice (Audia & Rider, 2007), there is an urgent need to study the process of becoming an entrepreneur from the perspective of those who are currently employed. As employment experience has been shown to be important preparation for starting ventures and succeeding in them (Astebro & Thompson, 2011; Dimov, 2010; Unger, Rauch, Frese & Rosenbusch, 2011), better understanding both how and why employed persons may transition to entrepreneurship vs. stay with their existing organization and behave intrapreneurially is of utmost importance. From an organizations' perspective, it may mean the difference between keeping and losing valuable talent.

Researchers increasingly agree that new venture creation (whether inside or outside an existing organization) should not be studied as a single event but rather as a process occurring over time, depending not only on economic and social factors, but also on the potential intrapreneur or entrepreneur's personal characteristics, including their beliefs and attitudes (Baron, 2007; Phan, 2004; Shane & Venkatamaran, 2000; Shane, Locke & Collins, 2003; Vecchio, 2003). Entrepreneurial intention formulation is treated as one of the important stages of the entrepreneurial process (Baron, 2007; Rauch & Frese, 2007).

This notion of entrepreneurial career choice as a process fits well with theoretical lenses such as social cognitive theory, which also asserts that

intentions affect the choice of the course of action as well as sustain it (Bandura, 2001). Additionally, the theory of planned behaviour notes that intentions serve as the best predictors of planned future behaviours (Ajzen, 1991; Ajzen & Fishbein, 2000; Krueger, Reilly & Carsrud, 2000), also a process oriented view. Surprisingly though, reviews of existing research show that intention only accounts for less than 30% of the variance in behaviour (Armitage & Connor, 2001); thus calling for an improved view of the cognitive antecedents of intentions, in the hopes of better understanding the entire process of entrepreneurial career choice from the development of efficacy, through intentions, to actual behaviours. Through an increased focus on improved construct clarity and a greater understanding of personal and situational factors impacting the development of entrepreneurial career choice called for earlier, it is hoped that the connection between intentions and behaviours, both within and outside of existing organizations, can be sharpened through future research.

Limitations & Further Suggestions

The results of this study should be considered in light of its limitations, which it is hoped will also help to guide future research on related topics. Firstly, the current study specifies intentions (entrepreneurial and staying) as its outcome variables and does not measure the behavioural outcomes of those intentions. In light of the fact that the aim of the study was to better understand the cognitions that precede career choice however, it is asserted that the choice of intentions as an outcome is appropriate. It is also important to note that as intentions have been shown to be the immediate predecessors of action (i.e. Ajzen, 1991), future

research may wish to examine the intentionality - action link in more detail. To support this, I further suggest that future research may wish to examine the efficacy - intentions relationship longitudinally, by following participants over a period of time to determine how rising efficacy may be tied to intentionality. Indeed, EI & SI are evolving and dynamic constructs, yet much of the prior research involving them is cross-sectional (including the current work). This research would certainly benefit from a more longitudinal approach to exploring both its antecedents and outcomes and how these evolve over time (or over the course of a career). Notions of entrepreneurship as an unfolding process playing out in the context of a 'boundaryless career' support this suggestion and combinations of these constructs in concert with a longitudinal research design may yield exciting insights into entrepreneurial career choice over time.

Related to this, future research may wish to focus on actual transitions from paid employment to new venture creation with a focus on the duration and process. As the initial decision to pursue an entrepreneurial career choice differs from persistence in that choice (Patel & Thatcher, Forthcoming). It will be important for future research to examine not just entry but such persistence. The examination of intentionality in the current study is somewhat limited by the fact that my measure of staying intention is only three-items and while it showed strong reliability, an alternative measure may provide a more elaborated view of the construct, providing more detailed input to the construction of the intention profiles built as part of this work. The notion of 'intrapreneurial intentions' discussed earlier may also improve upon a measure of staying intentions in terms

of determining who will engage in entrepreneurial-type activity within an existing organization. To this aim, future work should continue to refine the measure of intrapreneurial intentions developed by Douglas & Fitzsimmons (2013), as well as test it empirically.

Conclusion

Overall this study has significant implications for understanding entrepreneurial career choices. Gaining a richer understanding of the development of intentionality leading to such choice within and outside of existing organizations allows for deeper consideration of the process of 'approaching' vs. 'avoiding' entrepreneurship. It is important for organizations to consider how to harness efficacy for entrepreneurship built in the course of employment and how this could lead individuals to innovate through intrapreneurial activity inside an existing organization or conversely to pursue the path of new venture creation outside the organization. Both have implications for the broader notion of a career that is 'boundaryless' and should be considered in light of changing work environments and complex economic conditions.

FIGURE 4-1
INTENTION PROFILES

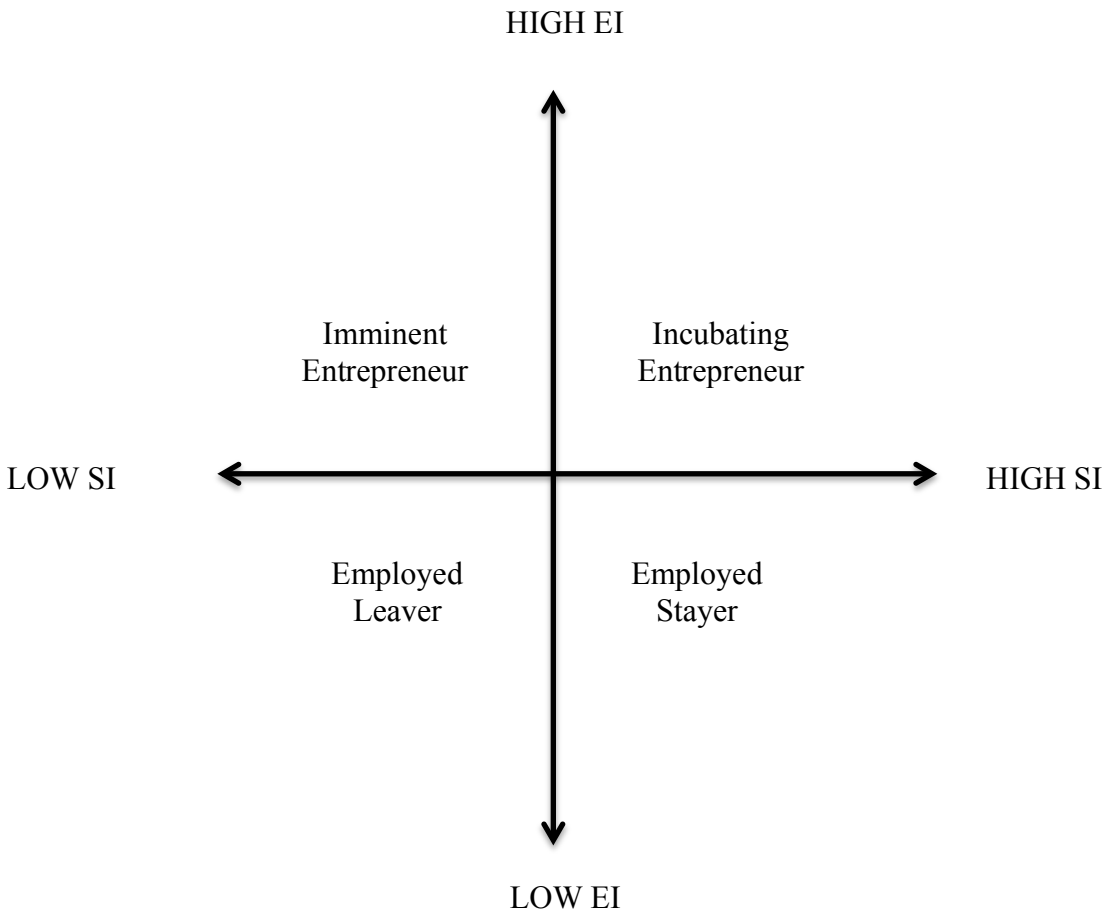

TABLE 4-1
CFA – Model Comparisons

Model	Factors	Chi-square	df	Change in cs	RMSEA	CFI	SRMR
1	Three factors: ESE, EI, SI	1194.51	149		.05	.95	.05
2	Two factors: ESE, EI and SI combined	1684.61	151	490.10***	.18	.77	.10
3	One factor: ESE, EI and SI all combined	3736.90	152	2542.39***	.28	.46	.19

*** $p \leq .001$

TABLE 4-2
Means, Standard Deviations, Scale Reliabilities and Correlations

	Variable	Mean	SD	1	2	3	4	5	6	7	8
1	EI	2.24	1.34	(.97)							
2	SI	4.40	1.83	-.23**	(.89)						
3	Age	44.78	10.52	-.15**	.16**	(1)					
4	Gender	.63	.48	-.08	.02	-.06	(1)				
5	ESE	2.65	.99	.45**	.01	-.07	-.14*	(.96)			

N = 304. Internal consistency reliability co-efficients (alphas) appear in parentheses along the main diagonal. Significance tests are two-tailed.
$p \leq .05$; ** $p \leq .01$.

TABLE 4-3
OLS Regression Results for Entrepreneurial Intention & Staying Intention

	DV = EI		DV = SI	
Variables	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Age	-.15**	-.12*	.16**	.16**
Gender	-.09	-.03	.03	.03
ESE		.44***		.03
R^2	.03	.22	.03	.03
Adjusted R^2	.02	.21	.02	.02
F	4.77*	28.31***	4.10*	2.79*

N = 304. Values in the table are standardized coefficients (Beta weights).
$p \leq .05$; ** $p \leq .01$; *** $p \leq .001$ (two-tailed tests).

TABLE 4-4
Intention Profile Means

Intentions	Mean	Incubating Intrapreneur (N = 66)	Employed Stayer (N = 145)	Employed Leaver (N = 51)	Imminent Entrepreneur (N = 42)
EI	2.24	3.78	1.37	1.40	3.88
SI	4.40	4.85	5.63	2.25	2.05

TABLE 4-5
Estimated Coefficients of MLOGIT Regression of ESE on Intention Profiles

							95% Confidence Interval	
	Predictor	***B***	**S.E.**	**Wald**	**df**	**OR**	**Lower**	**Upper**
Incubating Entrepreneur	Age	0.24	.019	1.539	1	1.024	.986	1.064
	Gender	.930*	.428	4.730	1	2.535	1.096	5.860
	ESE	.037	.221	.027	1	1.037	.673	1.599
Employed Stayer	Age	.058***	.018	10.241	1	1.060	1.023	1.098
	Gender	.271	.407	.444	1	1.312	.590	2.914
	ESE	-.759***	.204	13.842	1	.468	.314	.698
Employed Leaver	Age	.034	.021	2.663	1	1.035	.993	1.079
	Gender	.553	.470	1.384	1	1.738	.692	4.363
	ESE	-.956***	.242	15.599	1	.384	.239	.618

NOTE: * $p \leq .05$; ** $p \leq .01$, *** $p \leq .001$.
Reference category = Imminent Entrepreneur

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50,* 179-211.

Azjen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Azjen, I., & Fishbein, M. (2000). Attitudes and the attitude-behavior relation: Reasoned and automatic processes. In W. Stroebe & M. Hewstone (Eds.), *European Review of Social Psychology* (vol. 11, pp. 1-33). New York, NY: John Wiley & Sons.

Amo, B.W. & Kolvereid, L. (2005). Organizational strategy, individual personality and innovation behavior. *Journal of Enterprising Culture, 13(1),* 7-19.

Anna, A.L, Chandler, G.N., Jansen, E. and Mero, N.P. (1999). Women business owners in traditional and non-traditional industries. *Journal of Business Venturing, 15,* 279-303.

Antoncic, B. & Hisrich, R.D. (2001). Intrapreneurship: Construct refinement and cross cultural validation. *Journal of Business Venturing, 16,* 495-527.

Armitage, C.J., & Connor, M. (2001). Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology, 40,* 471-499.

Arthur, M.B., & Rousseau, D.M. (1996). Introduction: The boundaryless career as a new employment principle. In M.B. Arthur & D.M. Rousseau (Eds.), *The Boundaryless Career* (pp. 3-20). New York, NY: Oxford University Press.

Astebro, T., & Thompson, P. (2011). Entrepreneurs, jack of all trades or hobos? *Research Policy, 40(5),* 637-649.

Audia, P.G., & Rider, C.I. (2007). Entrepreneurs as organizational products revisited. In J.R. Baum, M. Frese & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 113-130). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84(2),* 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1988). Organizational applications of social cognitive theory. *Australian Journal of Management, 13,* 137-164.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York, NY: W.H. Freeman.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52,* 1-26.

Barney, J., & Wright, P. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management, 37(1),* 31-46.

Baron, R.A. (2007). Entrepreneurship: A process perspective. In J.R. Baum, M. Frese, & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 19-40). Mahwah, NJ: Lawrence Erlbaum.

Baum, J., Locke, E.A. and Smith, K. (2001). A multidimensional model of venture growth. *Academy of Management Journal, 44(2),* 292-303.

Baum, J. and Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology, 89(4),* 587-598.

Betz, N.E. (2000). Self-efficacy theory as a basis for career assessment. *Journal of Career Assessment, 8(3),* 205-222.

Betz, N.E. (2004). Contributions of self-efficacy theory to career counselling: A personal perspective. *The Career Development Quarterly, 52,* 340-353.

Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review, 13(3),* 442-453.

Bird, B.J. (1992). The operations in time: The emergence of the new venture. *Entrepreneurship Theory & Practice, 17(1),* 11–20.

Boswell, W.R., Zimmerman, R.D., & Swider, B.W. (2012). Employee job search: Toward an understanding of search context and search objectives. *Journal of Management, 38(1),* 129-163.

Boyd, N., & Vozikis, G. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship Theory & Practice, 18(4),* 63-77.

Brush, C.G. (1990). Women and enterprise creation. In S. Gould & J. Parzen (Eds.), *Women, entrepreneurship and economic development* (pp. 37-50). Paris: OECD.

Carter, N.M., Gartner, W.B., Shaver, K.G., & Gatewood, E.J. (2003). The career reasons of nascent entrepreneurs. *Journal of Business Venturing, 18,* 13-39.

Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing, 13,* 295-316.

Colarelli, S.M. (1984). Methods of communication and mediating processes in realistic job previews. *Journal of Applied Psychology, 69(4),* 633-642.

Cox, L.W., Mueller, S.L., & Moss, S.E. (2002). The impact of entrepreneurship education on entrepreneurial self-efficacy. *International Journal of Entrepreneurship Education, 1(2),* 229-245.

Delery, J.E., & Shaw, J.D. (2001). The strategic management of people in work organizations: Review, synthesis and extension. In G.R. Ferris (Ed.), *Research in Personnel and Human Resources Management, Vol. 20* (pp. 165-197). Greenwich, CT: JAI Press.

DeNoble, A.F., Jung, D.S., & Ehrlich, S.B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. In P. Reynolds, W. Bygrave, S. Manigart, C. Mason, G. Meyer, H. Sapienza & K. Shaver (Eds.), *Frontiers of entrepreneurship research* (pp. 73-87). Babson Park, MA: Babson College.

Dimov, D. (2010). Nascent entrepreneurs and venture emergence: Opportunity confidence, human capital and early planning. *Journal of Management Studies, 47(6),* 1123 – 1153.

Dobrev, S.D. & Barnett, W.P. (2005). Organizational roles and the transition to entrepreneurship. *Academy of Management Journal, 48,* 433-449.

Douglas, E.J., & Fitzsimmons, J.R. (2013). Intrapreneurial intentions versus entrepreneurial intentions: Distinct constructs with different antecedents. *Small Business Economics, 41,* 115-132.

Douglas, E.J., & Shepherd, D.A. (2000). Entrepreneurship as a utility-maximizing response. *Journal of Business Venturing, 15(3),* 231-251.

Eren, O., & Sula, O. (2012). The effect of ability on young men's self-employment decision: Evidence from the NELS. *Industrial Relations: A Journal of Economy and Society*, 51, 916–935.

Fairlie, R. W., & Robb, A. (2007). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *Industrial and Labor Relations Review, 60*, 225–245.

Fitzsimmons, J.R., & Douglas, E.J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing, 26(4),* 431-440.

Griffeth, R.W., Hom, P.W., & Gaernter, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*, 463-488.

Gunderson, M. (1989). Male-female wage differentials and policy responses. *Journal of Economic Literature, 27*, 46-72.

Hackett, G., & Betz, N.E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior, 18,* 326-339.

Haynie, J.M., & Shepherd, D.A. (2011). Toward a theory of discontinuous career transition: Investigating career transitions necessitated by traumatic life events. *Journal of Applied Psychology, 96(3),* 501-524.

Hayton, J. C., & Kelley, D. J. (2006). A competency-based framework for promoting corporate entrepreneurship. *Human Resource Management, 45*, 407–427.

Hirschi, A., Lee, B., Porfeli, E. J., & Vondracek, F. W. (2013). Positive motivation and engagement in career behaviors: Investigating direct, mediated, and moderated effects. *Journal of Vocational Behavior, 83,* 31–40.

Honig, B. (2001). Learning strategies and resources of entrepreneurs and intrapreneurs. *Entrepreneurship Theory & Practice, 26(1),* 21-35.

Hmieleski, K.M. and Corbett, A.C. (2008). The contrasting interaction effects of improvisational behaviour with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction. *Journal of Business Venturing, 23,* 482-496.

Jennings, J.E., & Brush, C.G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature. *The Academy of Management Annals, 7(1),* 663-715.

Jung, D.S., Ehrlich, S.B., DeNoble, A.F. and Baik, K.B. (2001). Entrepreneurial self-efficacy and its relationship to entrepreneurial action: A comparative study between the US and Korea. *Management International, 6(1),* 41-54.

Kacperczyk, A.J. (2012). Opportunity structures in established firms: Entrepreneurship versus intrapreneurship in mutual funds. *Administrative Science Quarterly, 57(3),* 484-521.

Kelley, D., Brush, C., Greene, P., & Litovsky, Y. (2011). *The Global Entrepreneurship Monitor: 2010 Women's Report.* Wellesley, MA: Babson College & GERA.

Krueger, N.F. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory & Practice, 18,* 5-21.

Krueger, N.F., & Carsrud, A.L. (1993). Entrepreneurial intentions: Applying the theory of planned behavior. *Entrepreneurship & Regional Development, 5,* 315-330.

Krueger, N.F., Reilly, M.D., & Carsrud, A.L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15(5-6),* 411-432.

Lent, R.W., Brown, S.D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice and performance. *Journal of Vocational Behavior, 45,* 79-122.

Levesque, M., Shepherd, D.A., & Douglas, E.J. (2002). Employment or self-employment: A dynamic utility-maximizing model. *Journal of Business Venturing, 17,* 189-210.

Mitchell, R. K., Busenitz, L. W., Bird, B., Marie Gaglio, C., McMullen, J. S., Morse, E. A., & Smith, J. B. (2007). The central question in entrepreneurial cognition research. *Entrepreneurship Theory and Practice*, *31*, 1–27.

Monsen, E., Patzelt, H., & Saxton, T. (2010). Beyond simple utility: Incentive design and trade-offs for corporate employee-entrepreneurs. *Entrepreneurship Theory & Practice, 34,* 105-130.

Moore, D. P., & Buttner, E. H. (1997). *Women entrepreneurs: Moving beyond the glass ceiling.* Thousand Oaks, CA: Sage.

Parker, S.C. (2011). Intrapreneurship or entrepreneurship? *Journal of Business Venturing,* 26, 19-34.

Patel, P.C., & Thatcher, S.M.B. (Forthcoming). Sticking it out: Individual attributes and persistence in self-employment. *Journal of Management*. Advance online publication 15 May 2012. doi: 10.1177/0149206312446643.

Phan, P.H. (2004). Entrepreneurship theory: Possibilities and future directions. *Journal of Business Venturing, 19,* 617-620.

Rauch, A., & Frese, M. (2007). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. In J.R. Baum, M. Frese, & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 41-65). Mahwah, NJ: Lawrence Erlbaum.

Scherer, R., Brodzinski, J., & Wiebe, F. (1990). Entrepreneurial career selection and gender: A socialization approach. *Journal of Small Business Management*, *28*, 37–44.

Schmelter, R., Mauer, R., Börsch, C., & Brettel, M. (2010). Boosting corporate entrepreneurship through HRM practices: Evidence from German SMEs. *Human Resource Management, 49,* 715–741.

Sequeira, J., Mueller, S.L. and McGee, J.E. (2007). The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behaviour. *Journal of Developmental Entrepreneurship, 12(3),* 275-293.

Shane, S., Locke, E.A., & Collins, C.J. (2003). Entrepreneurial motivation. *Human Resource Management Review, 13,* 257-279.

Shane, S., Nicolaou, N., Cherkas, L., & Spector, T. D. (2010). Genetics, the Big Five, and the tendency to be self-employed. *Journal of Applied Psychology*, 95, 1154–1162.

Shane, S., & Venkatamaran, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25,* 217-226.

Shapero, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. Kent, D. Sexton & K. Vesper (Eds.), *The Encyclopedia of Entrepreneurship* (pp. 72-90). Englewood Cliffs, NJ: Prentice Hall.

Sharma, P. & Chrisman, J.J. (1999). Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. *Entrepreneurship Theory & Practice, 23(3),* 11-27.

Shaver, K., & Scott, L. (1991). Person, process, and choice: The psychology of new venture creation. *Entrepreneurship Theory & Practice, 16,* 23-45.

Song, Z., Wanberg, C., Niu, X., & Xie, Y. (2006). Action-state orientation and the theory of planned behavior: A study of job search in China. *Journal of Vocational Behavior, 68,* 490-503.

Sorensen, J.B. (2007). Bureaucracy and entrepreneurship: Workplace effects on entrepreneurial entry. *Administrative Science Quarterly, 52,* 387-412.

Suddaby, R. (2010). Challenges for institutional theory. *Journal of Management Inquiry, 19(1),* 14-20.

Swider, B.W., Boswell, W.R., & Zimmerman, R.D. (2011). Examining the job search-turnover relationship: The role of embeddedness, job satisfaction and available alternatives. *Journal of Applied Psychology, 96,* 432-441.

Thompson, E.R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory & Practice, 33(3),* 669-694.

Unger, J., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytic review. *Journal of Business Venturing, 26(3),* 341-358.

Van Hooft, E.A.J., Born, M.P., Taris, T.W., & Van Der Flier, H. (2005). Predictors and outcomes of job search behavior: The moderating effects of gender and family situation. *Journal of Vocational Behavior, 67,* 133-152.

Vecchio, R.P. (2003). Entrepreneurship and leadership: Common trends and common threads. *Human Resource Management Review, 13,* 303-327.

Wanberg, C.R., Glomb, T.M., Song, Z., & Sorenson, S. (2005). Job-search persistence during unemployment: A 10-wave longitudinal study. *Journal of Applied Psychology, 90,* 411-430.

Wood, R.E., & Bandura, A. 1989. Social cognitive theory of organizational management. *Academy of Management Review, 14(3),* 361-384.

Youndt, M.A., Snell, S.A., Dean, J.W. Jr., & Lepak, S.P. (1996). Human resource management, manufacturing strategy and firm performance. *Academy of Management Journal, 39,* 836-866.

Zellweger, T., Sieger, P. and Halter, F. (2011). Should I stay or should I go? Career choice intentions of students with family business background. *Journal of Business Venturing, 26,* 521-536.

Zhao, H., & Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: a meta-analytical review. *Journal of Applied Psychology*, *91*, 259–271.

Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied*

Psychology, *90*, 1265–1272.

Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2009). The relationship of personality to entrepreneurial intentions and performance: a meta-analytic review. *Journal of Management*, *36*, 381–401.

CHAPTER 5

CONCLUSION

"…people who regard themselves as highly efficacious act, think, and feel differently from those who perceive themselves as inefficacious. They produce their own future, rather than simply foretell it." (Bandura, 1986, p. 395)

The overarching goal of the three preceding chapters has been to contribute to a better overall understanding of the construct of entrepreneurial self-efficacy (ESE), including an investigation of its antecedents and consequences as well as its implications for career-related decisions. Derived from the broader construct of self-efficacy alluded to in the above quotation, ESE is a domain specific derivative of general self-efficacy referring to the belief in one's ability to successfully engage in venture creation activities based on a personal assessment of one's entrepreneurial skills (Chen, Greene & Crick, 1998; DeNoble, Jung & Ehrlich, 1999). Understanding such a construct has arguably never been more important given rapidly changing business and organizational environments, in which people who can produce their own futures, rather than foretell them will be at a distinct advantage.

In Chapter 2, I examined gender differences in ESE from a learning perspective. The purpose of this study was to investigate whether the four major factors known to contribute to self-efficacy in general (enactive mastery, vicarious experience, physiological arousal and verbal persuasion) can help account for observed gender differences in ESE. Using a two-stage design, including an online survey followed by a quasi-experiment involving an opportunity evaluation task, the findings demonstrate that the significantly lower ESE of the young

women in our sample was attributable to their lower level of prior entrepreneurial experience, their lower level of positive and negative affect towards entrepreneurship and their higher likelihood of receiving failure feedback due to their actual performance on an opportunity evaluation task. Given the importance of understanding why females continue to be under-represented in entrepreneurial activity the world over, these findings provide additional insight into why young women tend to feel less efficacious than young men about their ability to successfully undertake an entrepreneurial career. This paper offers a comprehensive and unified theoretical framework, derived from social cognitive theory, for furthering our understanding of the factors that contribute to gender differences in ESE. It also offers a novel quasi-experimental design involving an opportunity evaluation task that others might find useful, particularly for empirical research adopting a cognitive and/or affective lens on entrepreneurship.

In Chapter 3, I turned to an examination of how high performance work systems (HPWS) may impact the development of an employee's ESE by engendering ambidexterity through creative and adaptable behaviours. Drawing on tenets of human capital theory and social exchange theory, I argued that HPWS contribute to the development of such behaviours in employees that enable the firm to explore and exploit simultaneously. As employees gain enactive mastery with such behaviours, I further suggested that this experience then translates into increasing ESE. Using an online survey design, the findings demonstrate that both forms of creativity mediate the HPWS-ESE relationship, but that adaptability did not. In addition, HPWS were more strongly related to

incremental than radical creativity. The findings are discussed in the broader context of human capital theory, social exchange theory and social cognitive theory, and implications for both the implementation of HPWS and the development of ESE in an employee population are explored.

Finally, in Chapter 4, using an online survey once again, I drew on Wood & Bandura's (1989) notion of 'approach' vs. 'avoidance' to extend theorizing around the circumstances under which employed individuals may approach and/or avoid entrepreneurial careers. In doing so, I explored the logical corollary of a positive ESE-EI relationship; namely that it should be simultaneously connected with a negative relationship between ESE and staying intentions (SI). This led to the construction of a career intentionality profile based on high and low levels of EI and SI.

Exploring the impact of ESE on each of the profiles, I found that individuals in the imminent entrepreneur category (high EI and low SI) were significantly more likely to display higher levels of ESE than either those in the employed stayers (low EI and high SI) or employed leavers (low EI and low SI) categories. Interestingly, women were far more likely to be part of the incubating entrepreneur (high EI and high SI) category than men, a finding I explored in light of the gendered nature of entrepreneurship. Expanding the notion of intentionality in the context of entrepreneurial career choice was the primary aim of this paper, with the ultimate aim of better understanding how individuals may demonstrate intent to pursue entrepreneurial activity, both inside and outside existing organizations.

Future Research

There are many possible avenues for future research. Among them is continued investigation of the reasons behind the lower ESE of women as well as avenues to address it. If, as Jennings & Brush (2013) note, entrepreneurship is truly a gendered phenomenon, simply recognizing that may inspire future research on such issues using alternative research techniques and populations to account for this state. Relatedly, additional research examining the definitions of success and failure in the entrepreneurial context may help those seeking to advance the cause of women in entrepreneurial careers.

Arising from this is extension of research examining persistence in entrepreneurial careers (Cardon & Kirk, Forthcoming; Holland & Shepherd, 2013; Patel & Thatcher, Forthcoming), which suggests that self-efficacy is related to whether an individual will persist with entrepreneurial activity. Persistence has been shown to be important to entrepreneurship (Shane, Locke & Collins, 2003) and future research should continue to examine how this relationship unfolds over time and in various contexts.

This research also starts a dialogue about the impact of HPWS in building ESE in employees, and the paths through which that might develop. Future work should examine other intermediary owner-like behaviours that may develop as a result of a HPWS, such as taking initiative, to see whether they too may have an impact on the development of ESE. Organizations are likely to be especially interested in this line of research, as there is a fine line between developing employees who are agentic and display owner-like behaviours to advance the

mission and vision of the organization, and having those valuable employees decide to leave the organization to pursue their own venture creation activities. Also valuable would be furthering the notion of the development of general vs. firm-specific capital and its relationship to entrepreneurial career choice.

It is also increasingly important to consider outcomes of ESE other than those traditionally considered by entrepreneurship researchers, such as the development of entrepreneurial intentions. Work differentiating intrapreneurship from entrepreneurship (Honig, 2001; Monsen, Patzelt & Sacton, 2010; Parker, 2011) holds much promise in extending thinking about the outcomes of the development of ESE, especially in an employed population. In particular, Douglas & Fitzsimmons' (2013) recent work exploring differences between intrapreneurial and entrepreneurial intentions is an excellent starting point for the development of alternative outcomes of ESE in employees. Also, as employment serves as an important starting point for many entrepreneurs (Audia & Rider, 2007), it would be prudent to extend research devoted to examining how entrepreneurial careers develop and persist over time. This is likely to require longitudinal research over the career life span of an individual, taking into account constructs such as marital and family status, income, education levels as well as any other potentially relevant variables that may impact career trajectories.

Conclusion

The overarching goal of this research was to provide a more nuanced view of entrepreneurial self-efficacy (ESE) through an examination of its antecedents and consequences. As an important motivational mechanism that forms part of

social cognitive theory, a better understanding of self-efficacy in the context of entrepreneurship is vital to advancing entrepreneurship as a career choice in a world of 'boundaryless careers'. One's belief in their ability to undertake and be successful in venture creation activities, whether inside or outside existing organizations, is critical to continuing to develop a workforce poised to seize whatever challenges lay in front of it, and may indeed allow individuals to be more agentic in their career development and trajectories.

REFERENCES

Audia, P.G., & Rider, C.I. (2007). Entrepreneurs as organizational products revisited. In J.R. Baum, M. Frese & R.A. Baron (Eds.), *The Psychology of Entrepreneurship* (pp. 113-130). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, NJ: Prentice Hall.

Cardon, M.S., & Kirk, C.P. (Forthcoming). Entpreneurial passion as a mediator of the self-efficacy to persistence relationship. *Entrepreneurship Theory & Practice.* Advance online pulication 28 Nov 2013. Doi:10.1111/etap.12089.

Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing, 13,* 295-316.

DeNoble, A.F., Jung, D.S., & Ehrlich, S.B. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action. In P. Reynolds, W. Bygrave, S. Manigart, C. Mason, G. Meyer, H. Sapienza & K. Shaver (Eds.), *Frontiers of entrepreneurship research* (pp. 73-87). Babson Park, MA: Babson College.

Douglas, E.J., & Fitzsimmons, J.R. (2013). Intrapreneurial intentions versus entrepreneurial intentions: Distinct constructs with different antecedents. *Small Business Economics, 41,* 115-132.

Holland, D.V., & Shepherd, D.A. (2013). Deciding to persist: Adversity, values & entrepreneurs' decision policies. *Entrepreneurship Theory & Practice, 37(2),* 331-358.

Honig, B. (2001). Learning strategies and resources of entrepreneurs and intrapreneurs. *Entrepreneurship Theory & Practice, 26(1),* 21-35.

Jennings, J.E., & Brush, C.G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature. *The Academy of Management Annals, 7(1),* 663-715.

Monsen, E., Patzelt, H., & Saxton, T. (2010). Beyond simple utility: Incentive design and trade-offs for corporate employee-entrepreneurs. *Entrepreneurship Theory & Practice, 34,* 105-130.

Parker, S.C. (2011). Intrapreneurship or entrepreneurship? *Journal of Business Venturing,* 26, 19-34.

Patel, P.C., & Thatcher, S.M.B. (Forthcoming). Sticking it out: Individual attributes and persistence in self-employment. *Journal of Management.* Advance online publication 15 May 2012. Doi:10.1177/0149206312446643.

Shane, S., Locke, E.A., & Collins, C.J. (2003). Entrepreneurial motivation. *Human Resource Management Review, 13(2),* 257-279.

Wood, R.E., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14(3),* 361-384.

APPENDIX A

Task performance feedback and scenario descriptions

Success Feedback and Scenarios	Ambiguous Feedback and Scenarios	Failure Feedback and Scenarios
Feedback: Overall, your rank ordering exhibits a very high degree of correspondence with the key criteria used by successful entrepreneurs to evaluate business opportunities. In other words, you seem to already know quite a lot about what makes for a high-potential business opportunity. Your performance on this fundamental and important entrepreneurial task suggests that you are already well-suited to successfully launching a business venture of your own one day.	**Feedback:** Overall, your rank ordering exhibits a moderate degree of correspondence with the key criteria used by successful entrepreneurs to evaluate business opportunities. In other words, you seem to already know a little about what makes for a high potential business opportunity. Your performance on this fundamental and important entrepreneurial task suggests that as you gain more knowledge you may become more suited to successfully launching a business venture of your own one day.	**Feedback:** Overall, your rank ordering exhibits a very low degree of correspondence with the key criteria used by successful entrepreneurs to evaluate business opportunities. In other words, you don't really seem to know (at least at this point in time) what makes for a high potential business opportunity. Your performance on this fundamental and important entrepreneurial task suggests that you are not all that well suited, at present, to successfully launching a business venture of your own.
Scenario 1: You have been talking with your friends and family members about your concept for a new business venture—and everyone seems really excited about your ideas! Some have even told you that they would be interested in helping you launch the venture.	**Scenario 1:** You have been talking with your friends and family members about your concept for a new business venture. Although some of them think your ideas will work, others aren't so sure.	**Scenario 1:** You have been talking with your friends and family members about your concept for a new business venture—but no one seems very excited about your ideas. Some have even advised you to go "back to the drawing board" because your current concept is not likely to be successful.

Scenario 2: You are trying to secure some start-up financing for your new business venture. After describing your business plan to the very first banker that you approached, she immediately offered you a $250,000 revolving line of credit—even though you had only asked for $100,000.	**Scenario 2:** You are trying to secure some start-up financing for your new business venture. The first two banks that you approached turned you down. The third bank is willing to lend you half the amount you were hoping for – but only if one of your parents acts as a guarantor.	**Scenario 2:** You are trying to secure some start-up financing for your new business venture. You have already approached three banks so far—and not a single one has been willing to lend you any money.
Scenario 3: You have been operating your business venture for two years now. You just examined your latest financial statements and discovered that your sales figures and profit levels are more than triple what you were expecting. You've even heard that your company may appear on the *Profit 100* list of Canada's fastest-growing companies.	**Scenario 3:** You have been operating your business venture for two years now. You just examined your latest financial statements and discovered that although your company's profits are beyond the break-even point, they still aren't high enough for you to pay yourself the amount that you were expecting to receive on a monthly basis.	**Scenario 3:** You have been operating your business venture for two years now. You just examined your latest financial statements and discovered that your business still isn't earning any profits, which means that you will once again be unable to retain any earnings for yourself. As such, your accountant has advised you to seriously consider shutting down the company.

APPENDIX B

Entrepreneurial Self-Efficacy Scale Items
(Cox, Mueller & Moss, 2002)

1 = Not at all confident
2 = Slightly confident
3 = Somewhat confident
4 = Very confident
5 = Extremely confident

How confident are you in your ability to…

Conceive of a unique idea for a business.

Identify market opportunities for a new business.

Plan a new business.

Write a formal business plan.

Raise money to start a business.

Convince others to invest in your business.

Convince a bank to lend you money to start a new business.

Convince others to work for you in your new business.

Manage a small business.

Grow a successful business.

APPENDIX C

High Performance Work Systems Scale Items

(Derived from Lepak & Snell, 2002; Chuang & Liao, 2010; Gong, Law, Chang & Xin, 2009; Mossholder, Richardson & Settoon, 2011)

1 = Strongly Disagree
2 = Disagree
3 = Slightly Disagree
4 = Neither Agree Nor Disagree
5 = Slightly Agree
6 = Agree
7 = Strongly Agree

Job Design

People in my job…

… are often asked to participate in work-related decisions.

…are allowed to make necessary changes in the way they perform their work.

…have discretion to make decisions without always reporting to a supervisor.

…are given the information and resources needed to do the job right.

Staffing

When someone needs to be hired for the job…

…candidates from within the organization are given priority.

…emphasis is placed on identifying the best all around candidate.

…emphasis is placed on a candidate's potential to learn.

…there are many qualified applicants to choose from.

Training

The training I receive in connection with this job…

…is more extensive than that offered in most other organizations.

…develops skills/knowledge needed to do my job better.

…helps prepare me for future jobs I might want to do in this organization.

…develops skills/knowledge that are unique to my organization's way of doing things.

Performance Feedback

The performance feedback received on this job…

…is based on input available from multiple sources (peers, subordinates, supervisor etc.).

…is tied into the pay/rewards I receive.

…is based on a formal, regularly occurring process.

…emphasizes my personal learning and development goals.

Rewards

The pay/rewards received in this job…

…are better than average.

…depend on how well I do my job.

…rewards the development of skills, knowledge and abilities.

…matches well with my organization's financial performance.

APPENDIX D

Alternative Model Specifications

Alternative Model 1
[EI (1-3/4-6) and SI (1-4/5-7)]

							95% Confidence Interval	
	Predictor	***B***	**S.E.**	**Wald**	**df**	**OR**	**Lower**	**Upper**
Incubating Entrepreneur (N = 27)	Age	.008	.022	.117	1	1.008	.965	1.052
	Gender	-.057	.465	.015	1	.945	.380	2.350
	ESE	.550*	.261	4.435	1	1.733	1.039	2.891
Employed Stayer (N = 106)	Age	.047**	.016	9.107	1	1.048	1.017	1.081
	Gender	-.441	.335	1.734	1	.643	.334	1.241
	ESE	-.664***	.174	14.552	1	.515	.366	.724
Employed Leaver (N = 97)	Age	.006	.015	.165	1	1.006	.976	1.037
	Gender	-.019	.328	.003	1	.982	.516	1.868
	ESE	-.646***	.174	13.866	1	.524	.373	.736

NOTE: * $p \leq .05$; ** $p \leq .01$, *** $p \leq .001$.
Reference category = Imminent Entrepreneur (N = 74)

Alternative Model 2
[EI (1-3/4-6) and SI (1-3/4-7)]

							95% Confidence Interval	
	Predictor	***B***	**S.E.**	**Wald**	**df**	**OR**	**Lower**	**Upper**
Incubating Entrepreneur (N = 60)	Age	0.17	.020	.778	1	1.018	.979	1.058
	Gender	.705	.429	2.696	1	2.024	.872	4.696
	ESE	.132	.223	.351	1	1.141	.737	1.767
Employed Stayer (N = 147)	Age	.043*	.018	5.856	1	1.044	1.008	1.080
	Gender	.137	.396	.120	1	.513	.347	.758
	ESE	-.668***	.199	11.204	1	.468	.314	.698
Employed Leaver (N = 56)	Age	.013	.020	.431	1	1.013	.974	1.055
	Gender	.420	.451	.868	1	1.522	.629	3.682
	ESE	-.813***	.232	12.280	1	.444	.282	.699

NOTE: * $p \leq .05$; ** $p \leq .01$, *** $p \leq .001$.
Reference category = Imminent Entrepreneur (N = 41)

APPENDIX E

Abbreviation Index

Abbreviation	Term
ESE	Entrepreneurial self-efficacy
HPWS	High performance work system
EI	Entrepreneurial intentions
SI	Staying intentions