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An Entrepreneurial Mindset: Self-Regulating Mechanisms for Goal Attainment

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To Tuva and Moa

ABSTRACT

Comprised of a cover story and five separate but interrelated articles, this dissertation explores entrepreneurial learning. By connecting multiple theoretical perspectives, reviewing extant literature, using four qualitative datasets, and building theory inductively, the articles explain components to and mechanisms of entrepreneurial learning. This dissertation is one of the first to explore the essence of entrepreneurial learning by incorporating non-entrepreneurs and entrepreneurs simultaneously, cognitive processes, and contextual variables.

 Learning lies at the core of entrepreneurship, and scholars have even argued that a theory of entrepreneurship requires a theory of learning. The literature suggests that experiences in the context of entrepreneurship triggers entrepreneurial learning, and that such learning relates to achieving ambitious goals, the discovery of new opportunities and better overall performance. Entrepreneurial learning has also been highlighted in contexts outside entrepreneurship and as a mean to fostering future entrepreneurs and developing people's entrepreneurial attributes and characteristics. The idea is that entrepreneurial learning can be of use to anyone, even to those lacking entrepreneurial experience.

Entrepreneurial learning literature, both inside and outside the context of entrepreneurship, emphasizes triggers of entrepreneurial learning, but does not recognize components that enable those triggers to be recognized and acted on and the underlying mechanisms that distinguish entrepreneurial learning from other types of learning. This gap makes it difficult to assess what entrepreneurial learning is and how it can be enhanced for both entrepreneurs and people preparing for entrepreneurship. This dissertation explains how and why entrepreneurial learning can be understood as a simultaneous and active regulation of cognition, motivation, and emotions to achieve goals. This elaboration captures core components and the mechanism of entrepreneurial learning, and illustrates how it can be understood and enhanced in various contexts.

ACKNOWLEDGMENTS

"I learned to always take on things I'd never done before. Growth and comfort do not coexist."

Ginni Rometty, IBM

This dissertation would not have been possible without support from others. I thank the people who were crucial to the development of this dissertation as a whole and for me as a researcher.

My gratitude goes to my supervisors, Sara, Mats, and Gudrun. Without Mats, I would probably not have had the opportunity to start as PhD-student at Entrepreneurship & Innovation in the first place. Thank you for believing in me and my potential as a researcher, and for the support and network you gave to me on the way. You made a dream come true. I am also grateful to Sara. In the course of the last four years, Sara has really helped to prepare me for an academic career. From Sara, I learned about the research process and what being a researcher is all about. She pushed me to do more than I thought I could, but also let me be when I needed it. I could not imagine a more generous person when it comes to knowledge sharing. I also thank Gudrun, who from start to finish provided me with wise comments, and demonstrated genuine interest in the development of both me and my research. The meetings at her beautiful house not only involved stunning views and fantastic food, but great discussions that always made me think twice about my arguments, which helped me get my thoughts straight. In addition, I thank Professor Bengt Johannisson, Professor Paula Kyrö and Associate Professor Per Blenker for feedback and helpful comments on an earlier draft of this dissertation.

I also thank my family. To my daughters, Tuva and Moa: thank you for your unconditional love, for reminding me of what is important and that there are always more questions to be asked. Thanks also go to Niklas for all the love and support, and to my parents for the encouragement (and babysitting) that made it possible. I am also grateful to my sister, Anna-Mia, for helpful discussions, and for always taking the time to help with everything, from fixing my computer and tables, and translations, calculations, and ideas. Thank you! Finally, I thank everyone else that in some way have contributed to this dissertation. Thank you all so very much!

APPENDED PAPERS

Paper #1

Lindh, I. & Thorgren, S. (2015). *Learning and Teaching Entrepreneurial Mindsets: Bridging Research in Business and Education*. NOVA Publishers.

Paper #2

Lindh, I. & Thorgren, S. (2016). Critical event recognition: An extended view of reflective learning. *Management Learning*, 47(5): 525–542

Paper #3

Lindh, I. & Thorgren, S. (2016). Entrepreneurship education: The role of local business life. *Entrepreneurship and Regional Development*, 28 (5/6), 313–336.

Paper #4

Lindh, I. Combining physical and virtual realities to enhance students' entrepreneurial development. Paper under review.

Paper #5

Lindh, I. (2017). Entrepreneurial development and the different aspects of reflection. *Journal of Management Education, 15, 26-38.*

Conference contributions not included in this dissertation

Lindh, I. *Problem-solving in Entrepreneurial Start-up Teams: Paths of Framing and Reframing*. Paper presented at Babson Conference, Oklahoma, 2017

Lindh, I. Thorgren, S & Williams, T. A *Divergent paths from entrepreneurial failure: Moving forward, trying again, and the dark side of resilience*. Paper presented at Babson conference, Oklahoma, 2017

Lindh, I. & Thorgren, S. *Conceptualizing Entrepreneurial Problemsolving*. Paper presented at the doctoral consortium at Academy of Management Annual Meeting, Anaheim, 2016.

Lindh, I. & Thorgren, S. *Life-Cycle Movements: The Entrepreneur-Firm Identity Interplay*. Paper presented at Babson Conference, Bodö, 2016.

Lindh, I. & Thorgren, S. *Moving on from Business Failure: The Role of Motivation and Negative Emotions*. Paper presented at Academy of Management Annual Meeting, Vancouver, 2015.

Lindh, I. *Entrepreneurial Development and the Different Aspects of Reflection*. Paper presented at NERA, Helsinki, 2015.

Lindh, I. *Developing Entrepreneurial Competences through Collaboration*. Paper presented at the ECSB 3E Conference in Turku, Finland, 2014.

Lindh, I. *A Research Proposal in the Interface of Entrepreneurs' and Entrepreneurial learning*. Paper presented at the doctoral program in NCSB Conference in Bodö, Norway, 2014.

CONTENTS

Part 1

CHAPTER 1

Introduction

"Effective entrepreneurs are exceptional learners. They learn from everything. They learn from customers, suppliers, and especially competitors. They learn from employees and associates. They learn from experience. They learn by doing. They learn from what works and, more importantly, what doesn't work" (Smilor, 1997 p 344)

1. Entrepreneurial learning

1.1 Entrepreneurial learning

Learning lies at the core of entrepreneurship (Minniti and Bygrave, 2001). Entrepreneurial learning has been described in a variety of ways, but often relates to achieving ambitious goals (Rae and Carswell, 2001), entrepreneurial preparedness (Cope, 2005), and discovery of new entrepreneurial opportunities (Corbett, 2005). Recognizing the importance of learning in entrepreneurship, scholars have tried to capture the essence and attributes of entrepreneurial learning, and since such processes involve everything from what entrepreneurs do or do not learn to how such learning takes place and when, the literature has become highly diverse and fragmented, with multiple conceptualizations and definitions (Wang and Chugh, 2014). Despite diversity of conceptualizations, definitions, and measures regarding what entrepreneurial learning implies, most researchers focus on triggers that enable learning. It has been suggested that entrepreneurial experiences distinguish entrepreneurial learning from other types of learning, and experiences such as critical and emotional events, and perceived lack of knowledge, enable entrepreneurial learning (e.g, Cope and Watts, 2000; Corbett, 2005; Stokes and Blackburn, 2002; Wang and Chugh, 2014). The literature has paid little attention to mechanisms that enable learning from entrepreneurial experiences in the first place, making it difficult for prospective entrepreneurs who lack entrepreneurial experience to prepare for learning during entrepreneurship, or for entrepreneurs to enhance their abilities.

Experiences are not equivalent to learning because they do not guarantee that learning has taken place (Politis, 2005) since experience and the knowledge acquired from it are disparate things

(Politis, 2005; Reuber and Fischer, 1994). This notion led researchers to investigate differences in individual learning orientations and styles (Corbett, 2007; Kolb, 1976; Wang, 2008). Among organizational learning theories, there is scholarly interest in addressing why some organizations are learning organizations and others are not (e.g, Crossan, Lane and White, 1999; Fiol and Lyles, 1985; García-Morales, Jiménez-Barrionuevo and Gutiérrez-Gutiérrez, 2012). Literature on the individual ability to acquire and understand entrepreneurial learning experiences remains scarce and diverse, and does not recognize underlying mechanisms that enable triggers of learning to be recognized and acted on.

Lack of knowledge on the essence of entrepreneurial learning has become cumbersome with increasing attempts to train future entrepreneurs, and with supranational policymakers who urge educators to use entrepreneurial learning to foster young people's entrepreneurial characteristics and mindsets (Naia, Baptista, Januário and Trigo, 2014; Rae and Wang, 2015). Placing entrepreneurial learning at the core of all education, throughout the education system (European Commission, 1998a, 2006, 2013; OECD, 1989, 1998), builds on the idea that entrepreneurship can be taught (Henry, Hill and Leitch, 2005) and entrepreneurial attributes developed (Jones and Iredale, 2010). Entrepreneurial learning in contexts outside of entrepreneurship is therefore apparent as both education about entrepreneurship and on how to start a firm, as well as in pedagogical programs, processes, and approaches that develop entrepreneurial mindsets and actions (Commission, 1998a, 2006, 2013; Fayolle and Klandt, 2006; Hytti and O'Gorman, 2004; OECD, 1989, 1998). Studying entrepreneurial learning and development of an entrepreneurial mindset raises questions regarding the term *entrepreneur* and boundaries for what it means to be an entrepreneur, become an entrepreneur, and act entrepreneurial. Since this dissertation includes a variety of terms such as *entrepreneurial development*, *entrepreneurial mindset*, *entrepreneurial capital*, and *entrepreneurial characteristics*, I elaborate on what the terms mean and how they relate.

Much entrepreneurship research focuses on issues such as why some people become entrepreneurs and others do not, and why some entrepreneurs succeed while others fail. Early research departed from characteristics, habits, and personalities of entrepreneurs (Shaver and Scott, 1991), while later research suggest that entrepreneurs do not differ from non-entrepreneurs in terms of personality, but by cognitive processing such as perceptions of risks, over optimism, and effectual logic (Sarasvathy, 2001), especially in situations characterized by information overload, uncertainty, and strong emotional reactions and time pressures (Baron, 1998). This literature implies that certain ways

of thinking and acting differentiate entrepreneurs from other people, and that the conditions in which entrepreneurs operate is an important factor. Sarasvathy and Venkataraman (2011) argue that entrepreneurship is a method of human problem-solving, a necessary and useful skill and mindset, and ultimately a way of understanding the world. This broadening of the term *entrepreneur* suggests a transition of the perceptions and descriptions of entrepreneurship as an economic activity, and for some people, to understanding it as relevant to everybody and something that can be taught, developed, and learned. A person does not have to own a business to be entrepreneurial and to, for example, tackle opportunities and problems entrepreneurially; entrepreneurship is a logic, a method or approach and way of reasoning about oneself and the world (Sarasvathy, 2009) — an entrepreneurial mindset.

Both the cognitive approach and the entrepreneurship-as-method perspective assume that people are not born entrepreneurs but can become entrepreneurial, and that the conditions, contexts, and preparedness for acting entrepreneurial are important to entrepreneurial actions. Assuming people are not born entrepreneurs but become entrepreneurs, some people become entrepreneurs no matter what, some people do not want to become entrepreneurs no matter what, and the large majority of people become entrepreneurs under some circumstances but not others (Sarasvathy, 2004; Shane and Venkataraman, 2000). From this perspective, entrepreneurship for everyone, and entrepreneurship at the core of an education system, is about removing barriers to entrepreneurship and strengthening the preparedness of everyone to become entrepreneurs whenever the circumstances are right. Although this suggests development of a mindset and a way of acting, public policy documents and curricula still suggest that this preparedness comes with development of entrepreneurial characteristics. This dissertation suggests that preparation for entrepreneurship (i.e., development of an entrepreneurial mindset) is about a way of learning and continuous entrepreneurial development, and ultimately a way of thinking about one's self and the world. Education and training directed toward such entrepreneurial preparedness and development relates to increased intention of becoming an entrepreneur (Liñán, 2004), greater self-efficacy (Zhao, Seibert and Hills, 2005), and in the long-term, a better career for those not exposed to the same training (Elert, Andersson and Wennberg, 2015). To understand how entrepreneurial learning can be enhanced, both in entrepreneurship and contexts preceding entrepreneurship, and for entrepreneurs and young people who lack entrepreneurial experience, it is important to gain better

understanding of the essence and core attributes of entrepreneurial learning, and what distinguishes entrepreneurial learning from other types.

Regarding triggers and outcomes of learning, literature on entrepreneurs' learning and literature on entrepreneurial learning in contexts such as education and training have both similarities and differences. In entrepreneurship literature, the majority of articles draw from theories of experimental learning to explain learning in entrepreneurship (Cope, 2003; Minniti and Bygrave, 2001; Politis, 2005). Although experiential learning involves both acquisition and transformation of experiences (Kolb, 1984), this type of trial-and-error learning occurs after experiences have already accumulated, meaning that entrepreneurs change their behaviors due to the consequences to which previous actions led (Argyris and Schön, 1978; Baum and Dahlin, 2007; Bingham and Davis, 2012). Literature on the learning of entrepreneurs builds on the cognitive process of transforming experiences to new knowledge and insights (Baron and Ward, 2004; Politis, 2005). Experiences such as critical and emotional events enhance learning because of the reflections it generates of current ways of doing things (Cope, 2003).

The idea that entrepreneurs learn from experiences has had the most influence on the content and pedagogy of entrepreneurial training and education (Cope and Watts, 2000; Fayolle, 2013). By allowing prospective entrepreneurs without experience to face uncertainty and critical events, they not only learn from the event, but develop the ability to think, act, and learn as an entrepreneur (Cope and Watts, 2000; Pittaway and Thorpe, 2012). Entrepreneurial training and education builds on the idea that learning is triggered, or mediated, by (1) the person teaching it, (2) teaching settings resembling that of entrepreneurs (Cope and Watts, 2000; Pittaway and Cope, 2007b), and (3) reflection caused by entrepreneurial experiences in entrepreneurial environments that enhance a learner's entrepreneurial attributes and characteristics (Cope, 2003; Pepin, 2012), and teaches how to work, think, act, and learn entrepreneurially as an outcome (Neck and Greene, 2011; Peterman and Kennedy, 2003). Entrepreneurial learning is therefore suggested to prepare young people for entrepreneurship (Harry Matlay, Rae and Ruth Woodier-Harris, 2013).

Emphasis on entrepreneurial experiences for learning to occur is problematic given little understanding of what such experiences must include for entrepreneurs to learn from them, and why some entrepreneurs are better at learning from prior experiences than others. A focus on experiences also raises questions regarding mechanisms that enable prospective entrepreneurs who

lack entrepreneurial experience to recognize which experiences to learn from and how they can prepare for entrepreneurship. Discussed in detail later, this dissertation defines entrepreneurial learning as the simultaneous and active regulation of cognitions, emotions, and motivations to achieve goals. This definition differs from others in two ways. First, instead of treating experiences as a prerequisite of learning, the definition focuses on the mechanisms or components that enable learning from entrepreneurial experiences. Thus, instead of focusing on experiences *per se*, this dissertation focuses on components that enable learning from experience. Second, the ability to self-regulate cognitions, emotions, and motivations to achieve goals suggests that entrepreneurial learning may be enacted by both entrepreneurs and people lacking entrepreneurial experience and in a variety of contexts.

1.2 Aim and overall research question

To discover what enables entrepreneurial learning both before and during entrepreneurship for both entrepreneurs and non-entrepreneurs, it is important to first understand entrepreneurial learning. This dissertation explores components and underlying mechanisms of entrepreneurial learning, and the outcomes to which they lead in terms of strengthening and developing entrepreneurial mindsets. Accordingly, this dissertation explores three research questions:

(1) What are the core components of entrepreneurial learning?

(2) What mechanisms enable entrepreneurial learning for both entrepreneurs and people lacking entrepreneurial experiences?

(3) How does entrepreneurial learning develop entrepreneurial mindsets?

By elaborating on what entrepreneurial learning means and how it manifests, this dissertation contributes to understanding ways that prospective and current entrepreneurs learn before and during entrepreneurship. Combining entrepreneurship literature with educational psychology theories, this dissertation illustrates components of entrepreneurial learning, especially concerning the role of cognitive and emotional awareness, and motivation, in achieving goals. Although extant research typically focuses on triggers for learning, this dissertation directs attention to components that enable learning from such triggers. By revealing interrelationships among these components – simultaneous and active regulation of cognitions, emotions, and motivations to achieve goals – this dissertation enhances understanding of mechanisms that enable learning, both inside and outside of

entrepreneurship for entrepreneurs and non-entrepreneurs. It especially highlights the role of goal-setting and goal-striving for self-regulated learning to occur. This dissertation also contributes to research on individual and long-term, societal entrepreneurial development by illustrating the role of reflection and learning for development of an entrepreneurial mindset. It explains how simultaneous and active regulation of cognitions, emotions, and motivations relate to development of entrepreneurial mindsets, and the ability to set personal goals while understanding the goals in relation to the context in which they are set.

Chapter 2 reviews entrepreneurial learning literature, and Chapter 3 describes this dissertation's methods. Chapter 4 summarizes the papers in this dissertation, from which Chapter 5 theorizes the components to and dynamics of entrepreneurial learning. The chapter develops three propositions and a dynamic model that specifies how and why entrepreneurial learning can be understood as a process during which learners simultaneously and actively regulate their cognitions, emotions, and motivations to achieve goals, leading to development of entrepreneurial mindsets and actions. Chapter 6 discusses the contributions of this dissertation.

CHAPTER 2

Review of Entrepreneurial Learning

2. Review of entrepreneurial learning

2.1 Perspectives on entrepreneurial learning

Research on entrepreneurs' learning highlights experiences, emotional reactions, and lack of skills required to perform tasks, and that encourage reflections on and subsequent changes to current ways of thinking and acting. Building on this idea, entrepreneurial learning in the context of education and training emphasizes the role of learners gaining experience on which to reflect and from which to learn (Åsvoll and Jacobsen, 2012). This dissertation explores components and mechanisms that enable such reflections and learning. To do so, it is important to assess how extant literature captures entrepreneurial learning, and how it can be understood in education and training to foster new entrepreneurs. Shown in Figure 1, extant definitions of entrepreneurial learning separate broadly into three streams, including experience-, task-, and affect-driven learning, all of which offer disparate conceptualizations of what entrepreneurial learning is, and to what it leads. These three streams are described next, followed by a discussion of what unifies and distinguishes them.

Figure 1: Entrepreneurial learning: Extant research

Task-driven learning

Conceptualization: Learning skills and competences related to the task at hand

Source of learning: Need for competence or skill

Process of learning: Acquisition and application of new competences or skills in practice. A behavioral process.

Learning outcome: New skills and competencies eg new strategy, business planning, new techniques

Who learn: anyone who can learn

Motivation

Experience driven learning

Definition: Development of knowledge, skills needed in order to recognize and act on opportunities

Source of learning: Prior experiences

Process of learning: Learning is accumulative, previous experiences transformed into new knowledge. Learning as a cognitive process

Learning outcome: Use of prior knowledge for opportunity recognition and for managing a venture

Who learns: The more experiences, the more available knowledge

Cognitive processing Reflection

Affective learning

Conceptualization: Learning as sensemaking

Source of learning: Critical events causing strong emotions

Process of learning: Strong emotions directs attention and lead to reflection and learning. Cognitive process.

Learning outcome: Entrepreneurial self-efficacy, understandings. Strong emotions influence the extent to which learning takes place

Who learns: Emotional committed, emotional intelligent, emotional aware

2.1.1 Experience–driven learning

Research on experience-driven learning defines entrepreneurial learning as the development of knowledge and skills required to recognize and act on opportunities (Rae, 2006), and to start and manage a firm (Huovinen and Tihula, 2008; Politis, 2005; Voudouris, Dimitratos and Salavou, 2011). Such research investigates how entrepreneurs acquire and use knowledge related to opportunity recognition (Corbett, 2005, 2007) in relation to experience. Entrepreneurial learning originates from (entrepreneurial) experiences of creation and development of small enterprises (Cope, 2005), and occurs in dynamic and cognitive processes when experiences and knowledge transform into new insights and knowledge (Corbett, 2005; Kolb and Kolb, 2012; Politis, 2005); the greater the experiences, the greater the knowledge (Gruber, MacMillan and Thompson, 2008). Entrepreneurial experience is central to entrepreneurial behaviors to be enacted (Brink and Madsen, 2015; Rae and Carswell, 2001) because everything learned during one period builds on knowledge learned previously (Minniti and Bygrave, 2001). Research suggests that prospective entrepreneurs need entrepreneurial experiences from which to learn, and that they should be central to entrepreneurial training (Cope and Watts, 2000; Pittaway and Thorpe, 2012). Extant literature

does not, however, explain how entrepreneurs know what experiences to learn from, or why some entrepreneurs are better at learning from experiences than others are, making it difficult for learners to enhance their ability to learn from experiences and know from what experiences to learn.

2.1.2 Task–driven learning

Task-driven learning defines entrepreneurial learning as a concrete process during which an individual learns competencies and skills related to a task, such as strategizing, developing new techniques, engaging in quality management, and information-seeking (Jones and Macpherson, 2006). It can take the form of learning about oneself, learning about the environment, small-business management, and relationships with others (Pittaway and Thorpe, 2012). This stream of research focuses on the application of new knowledge (Man, 2012) and what it means for entrepreneurial behaviors in practice (Yamakawa and Cardon, 2015), such as changes to organizational structures, routines, and systems (Lumpkin and Lichtenstein, 2005), and business planning (Brinckmann, Grichnik and Kapsa, 2010; Delmar and Shane, 2003). Training based on this perspective focuses on business planning and creating budgets (Honig, 2004; Solomon and Matlay, 2008). Since research on this topic addresses the content of teaching rather than on elaborating on underlying motives for learning, it is difficult for learners to detect areas in need of competency development.

2.1.3 Affect–driven learning

Research on affect-driven learning focuses on critical events such as failures that cause reflections and learning. Failure is an opportunity to learn and develop entrepreneurial cognition (Deakins and Freel, 1998) because strong emotions initiate direct attention to things needed to change (Baron, 2008; Delgado García, Quevedo Puente and Blanco Mazagatos, 2015), and cause reflections on how to avoid similar critical events in the future (Cope, 2011; Cope and Watts, 2000). Affect influences how experiences are interpreted—positively or negatively (Cardon, Foo, Shepherd and Wiklund, 2012)—which in turn influence further engagements (Morris, Kuratko, Schindehutte and Spivack, 2012). Emotional commitment to a venture or project also influences learning outcomes (Shepherd, Patzelt and Wolfe, 2011).

Learning includes an affective dimension, but even if critical events cause strong emotions that make an entrepreneur reflect and learn, they are insufficient. For learning to occur, some form of emotional intelligence, emotional commitment (Kuratko and Shepherd, 2002; Shepherd and Cardon, 2009; Shepherd and Kuratko, 2009), or emotional regulation (Shepherd, 2003; Shepherd

and Cardon, 2009) is paramount. Otherwise, strong emotions inhibit learning (Shepherd, 2003; Shepherd, Wiklund and Haynie, 2009b). Affect-driven learning leads to higher self-efficacy (St-Jean and Audet, 2012), and accordingly, literature on entrepreneurial training and education urges students to learn about and from failures (Pittaway, Rodriguez-Falcon, Aiyegbayo and King, 2011; Shepherd, 2004; Souitaris, Zerbinati and Al-Laham, 2007), and the need for entrepreneurial self-efficacy to start a venture (Zhao et al., 2005). However, it is unclear how to develop the ability to detect and learn from emotional events.

2.1.4 Similarities and differences between the streams

The types of learning discussed above are portrayed as reactionary, during which adjustments occur after an event or experience has taken place. However, they can be both behavioral, such as adaptive acquisition and use of information, and cognitive, leading to sense-making and altered information-processing (Lumpkin and Lichtenstein, 2005). Such learning is suggested to both stem from and lead to development of entrepreneurial mindset and attributes (e.g., calculated risk-taking and tolerance for ambiguity) (Morris et al., 2012). Thus, entrepreneurial experiences and attributes are the cause, means, and result of entrepreneurial learning, disregarding how the ability to learn develops. Task-driven learning begins when a learner strives to learn something new, but generally, the idea in all three streams is that entrepreneurial learning is reinforced by how experiences lead to outcomes. Even during task-driven learning, the desire to learn a new competency or skill comes from experiences that highlight the need for learning. All three streams disregard learning that occurs proactively, is initiated to reach demanding goals, and is neither automatic (from experience) or reactive (to demands for new skills).

Scholarly interest in motivation-driven learning is scarce. Regarding affect-driven learning, some research suggests that learning from failures is neither immediate nor obvious, and motivation is required for learning from failure to occur (Corbett, Neck and DeTienne, 2007). Motivation drives learners to develop new skills related to a task, and strongly influences intuiting, interpreting, alertness, and creativity (Franco and Haase, 2009), which relate to experiential learning. One reason that motivation-driven learning has garnered little attention is its proactive nature. Literature on the topic suggests that learning, in contrast to being reactive, is an active process, demanding conscious alertness, and that cognitive development builds on an active search for knowledge, new networks, and technology from which to learn (e.g, Garcia-Cabrera and García-Soto, 2009). Learning is about self-management and motivation to cope with setbacks and change (Stokes and Blackburn, 2002),

while acquiring, retaining, and using entrepreneurial knowledge to achieve ambitious goals (Rae and Carswell, 2001).

Disparate drivers of learning have similarities regarding their theoretical foundations. Both experiential and affective learning characterize learning cognitively, and highlight the role of reflection. However, differences concern the extent to which learning is proactive or reactive. It is therefore surprising that there has been little interest in investigating how drivers of learning interrelate, whether they co-occur, and what is the influence of motivation for such learning to occur. Since the purpose of this dissertation is to explore components to and mechanisms of entrepreneurial learning, it discovers and describes how drivers of learning relate and can be understood among entrepreneurs and prospective entrepreneurs without entrepreneurial experience. The focus is on mechanisms that enable learning from these drivers, and to capture such learning and understand lack of it, the papers in this dissertation use a longitudinal, qualitative, interpretative approach during which experiences from informants are given a voice.

CHAPTER 3

Methods for Dissertation Papers

3. Research design and method

This section describes this dissertation's research design and methods, beginning with a discussion of philosophical assumptions and the motivation for using a qualitative case study. Discussions of the selection of cases, data collection, and analyses follow. Paper 1 is conceptual, and papers 2 through 5 are empirical.

3.1 Being an entrepreneur, becoming entrepreneurial, and engaging in entrepreneurship

This dissertation suggests that an entrepreneurial mindset can be taught and learned, and that entrepreneurship is important in contexts beyond venture creation and small business management. The papers that comprise this dissertation reflect developments in entrepreneurship research as a whole, with distinctions made between entrepreneurs and non-entrepreneurs, and the idea that entrepreneurs have certain characteristics. In paper 1, a distinction is made between entrepreneurs and non-entrepreneurs in order to learn from extant research and illustrate how research on entrepreneurial learning, especially in the context of learning, is divided between two fields. Papers 2, 4, and 5 focus on becoming an entrepreneur in a broad sense, and in terms of developing entrepreneurial mindsets that prepare and motivate a learner for entrepreneurial actions in a variety of forms when the circumstances are right.

Public effort to stimulate the entrepreneurial preparedness of young people builds on the idea that certain characteristics are important to foster, for example, by arguing that risk-taking, creativity, and autonomy are central for being entrepreneurial (e.g, Commission, 2013, 2015). From this perspective, paper 4 compares pedagogical approaches to understand whether, how, and when these characteristics develop using such pedagogies, and how they relate to development of an entrepreneurial mindset and learners thinking and acting more entrepreneurially. Yet, and as papers 2, 4, and 5 demonstrate, an entrepreneurial mindset involves the ability to question existing frameworks and ways of describing an entrepreneur. Thus, placing entrepreneurship at the core of all education implies a broadening of the boundaries of what is understood to be entrepreneurial.

Entrepreneurship in education is about developing young people to become future entrepreneurs, but also fostering critical correctors of what that implies.

3.2 Assumptions and approaches

The papers in this dissertation include both cognitive and sociocultural perspectives on learning. Given the disparate epistemological and ontological traditions of these perspectives (Kyrö, 2015), it is important to illustrate how I understand these perspectives and why it is important for the understanding of entrepreneurial learning to bridge them. I view learning as related to the personality, mindset, and cognitive mechanism of the learner, and that these influence how one learns, how one knows and reflect on one's own learning, and how one initiates action to learn. However, learning also relates to an education system. Education is a social phenomenon that reflects the values and ideas of the context in which learning occurs. Learning is mediated by teachers and education systems, as expressed in curricula, which transmit current values and assumptions to the next generation. For entrepreneurship in education and entrepreneurial learning, both perspectives are important. Entrepreneurship as a method, in which learners develop and strengthen their entrepreneurial mindsets by developing entrepreneurial problem-solving skills and new ways of thinking about the world and their roles in it (Sarasvathy and Venkataraman, 2011), demands cognitive development.

To study how and why learners think differently about the world and act accordingly, it is necessary to depart from the cognitive perspective. The cognitive learning paradigm suggests that learning occurs inside of a person through a process of organizing and processing information, and ultimately changing the structure of information. However, since policy directives place entrepreneurship at the core of all education, contemporary discourse on entrepreneurship influences perceptions of what an entrepreneurial mindset includes and excludes. According to curricula, for example, entrepreneurial skills include risk-taking, autonomy, self-efficacy, taking initiative, and being creative (Commission, 1998b, 2013, 2015), reflecting descriptions of entrepreneurship as something positive and related to creation, development, dynamics, and discovery, as opposed to, for example, safety, destruction, taking orders, the undiscovered, and preserving, while setting boundaries for what an entrepreneurial mindset is and is not (Berglund and Johansson, 2007). Taking a sociocultural or socio-constructivist perspective on learning emphasizes that knowledge is created though actions and interactions with others, and characterizes learning as a complex process that depends on the context in which it occurs, rather than an individual act (Kyrö, 2015). Thus,

perceptions of what being entrepreneurial implies may influence both perceptions of the learner and ideas for how to learn and what is important to learn, and developing to fit the description.

This dissertation assumes that entrepreneurial learning demands that learners are actors in their own learning, who define their learning goals and the means to achieve them. Experiences lie at the center of learning, and although it is cognitive, perceptions of what being entrepreneurial implies are shaped by the context in which a learner operates, transmitted through interactions with others in an education system. To understand development of an entrepreneurial mindset and what that implies in terms of learning, both learning perspectives must be included during analysis. This dissertation suggests that it is impossible to understand entrepreneurial learning by studying the psychology of the individual or context alone; the process during which these processes interrelate must be examined. Entrepreneurship is a process of not only adapting to existing ways of doing things, but also being a critical corrector and shaping new opportunities and new ways of doing things.

3. 3 Qualitative case study research

Although entrepreneurial learning is dynamic and is influenced by a learner's perceptions and the context in which it occurs, this dissertation suggests that it is possible to detect common features and facilitators of such learning. Studying the process and components to and dynamics of entrepreneurial learning is difficult, requiring insights into how individuals acquire new knowledge and skills, and how they make sense of them, the ability to observe when learning occurs, what motivates individuals to learn, how learning is influenced by the context in which it occurs, and how learning prepares for and relates to entrepreneurship. Multiple longitudinal case studies were chosen as the methodology for the majority of the studies in this dissertation, the reasons for which are several. Case studies have been used to explore learning (Cope, 2011; Cope and Watts, 2000), and make it possible to study each case as an analytic unit, but also included in a multiple-case study (Eisenhardt and Graebner, 2007). Case studies also allow a researcher to replicate, contrast, and extend extant theories about entrepreneurial learning while exploring how and why (Yin, 2003) it occurs, and use several data sources, such as interviews, with observations and archival data.

This dissertation uses a qualitative approach. Qualitative case studies are particularly appropriate when studying topics for which there are no theories, or that require elaboration and extending existing theories to answer questions about how or why (Eisenhardt, 1989; Lincoln and Guba,

1985; Yin, 2003), and capturing and explaining complex processes (Gioia, Corley and Hamilton, 2013) such as entrepreneurial learning (e.g, Cope, 2011; Deakins and Freel, 1998). Conducting qualitative research is an iterative process between literature and data/analysis, and theoretical sampling and theory-building using grounded theory. However, there are also important disparities among qualitative methods in terms of epistemology, how to make sense of and interpret data, and how to present results (Langley and Abdallah, 2011; Pratt, 2009).

Qualitative methods associate with a range of epistemological assumptions, and these assumptions influence how data are interpreted, and analyses and theorizing lead to results (Langley and Abdallah, 2011; Pratt, 2008). Common templates for data collection and presentation of qualitative research are two methodologies represented by Eisenhardt and colleagues (see Eisenhardt, 1989; Eisenhardt and Graebner, 2007) and Gioia and colleagues (see Gioia et al., 2013; Langley and Abdallah, 2011; Reay, 2014), both of which influenced the methodologies in this dissertation. The Gioia methodology suggests that the world is constructed socially, and that researchers need a voice from the people who live the experience of the phenomena being studied. This interpretative approach means that respondents are knowledgeable agents, able to explain emotions, thoughts, impressions, and learning (Gioia et al., 2013). From this voice and evidence from informants, the researcher orders themes and aggregate levels by building a data structure that illustrates relationships between concepts. This type of grounded analysis leads to a dynamic, inductive model that illustrates a path from first-order codes to second-order and aggregated dimensions (Corley and Gioia, 2004). What distinguishes the Gioia methodology from other methods is not simply the presentation of data in a data structure, but the process of constructing theory directly from informants, rather than viewing researchers as reporters of informants' perspectives, and filling gaps by demonstrating what makes one thing lead to another (Gioia et al., 2013; Nag, Corley and Gioia, 2007), rather than contrasting extant research (Hansson, 2012; Langley and Abdallah, 2011).

The Eisenhardt methodology (Eisenhardt, 1989) offers an alternative to conducting qualitative research, focusing on theory-building case study research. The approach is grounded in the positivist tradition, in which comparisons within and between cases, with emphasis on replication logic, result in new constructs, underlying theoretical arguments, and testable propositions. Such studies emphasize rich empirical data from multiple sources, such as observations, archival data, interviews, and various informants, that reduce, categorize, and present clear theme tables with bullet points (Brown and Eisenhardt, 1997; Eisenhardt and Graebner, 2007). The methodology is used primarily

when exploring underexplored phenomena or to contrast existing findings, and focus on the boxes and construct tables that summarize case evidence.

Both approaches to qualitative studies are used in this dissertation. Paper 2, for example, examines learning from experiences such as critical events. The Gioia methodology is used to capture and gain insights on how learners give meaning to their experiences, and why. An entire entrepreneurial training program was chosen as a case, and results were driven by understanding informants and data structures, presenting the process from the voice of informants to second-order themes and aggregated, theoretical dimensions. In contrast, papers 3 and 5 discovered variance among cases (i.e., municipalities and groups of students), and therefore involved choosing several cases that were distinct on several dimension, and presenting results through comparisons and boxes in line with the Eisenhardt methodology. Conversely, paper 2 informs about how learners recognize critical events, and paper 3 and 5, using replication logic, offered insights into how to understand differences in outcomes from entrepreneurial training and learning approaches.

Combining different approaches to qualitative research was important to understanding the entrepreneurial learning process, both from the perspective of the learner and in terms of patterns and relationships regarding teaching practices and pedagogical approaches. Such theorizing from multiple theoretical paradigms makes it important to elaborate on ontological and epistemological assumptions made during the dissertation (Benton and Craib, 2001). The purpose of this dissertation illustrates the assumption that it is possible to identify underlying mechanisms of learning, and doing so requires understanding how entrepreneurs and prospective entrepreneurs experience learning, and how they give meaning to experiences. This dissertation makes several assumptions: (1) individuals living the experience are able to explain their emotions, thoughts, and impressions, and (2) interactions with others influence interpretations of disparate experiences. These assumptions illustrate that this dissertation uses the pragmatic view that objective reality exists, but that perceptions of it are shaped by subjective views of individuals. It also highlights the importance of combining individual experiences with inquiry (Dewey, 1938) to develop hypothetical explanations of observed reality, and through them, build new theory.

3.4 Methodological overview

Purpose of the dissertation	To explore the components to, and dynamic process of, entrepreneurial learning
Aim of the research	Theory building
Research design	Multiple case study
Unit of analysis	Individual/Groups
Sampling strategy	Purposeful theoretical sampling
Types of data	Primary: Interview data, Observations, Self-assessment Secondary: documents, websites, media
Analytic approach	Grounded theory Gioia Eisenhardt Constant comparative method & pattern matching
Reliability	Triangulation (data, informants, theoretical) Consideration of reliability and validity issues
Ethical issues	Research on children under 18 Recording and use of personal and off the record comments after recorder has been switched off

3.5 Selection of cases

Sampling is important to conducting qualitative case study research because the researcher infers based on the words and experiences of participants (Miles and Huberman, 1994). The ability to generalize findings theoretically therefore depends on the sample size and scheme (Onwuegbuzie and Leech, 2007). Given the theory-building methods used in this dissertation, the cases in all of the papers were selected through theoretical sampling, in which locus of variation and opportunities for theoretical generalizability were controlled for (Eisenhardt, 1989) so that they contribute to new theorizing (Gioia et al., 2013). For example, the research questions required respondents to be engaged in various phases of entrepreneurial learning, with disparate experiences, such as young people without experience with entrepreneurship, prospective entrepreneurs engaged in entrepreneurial training, and current entrepreneurs. The first step to the sampling strategy involved identifying cases that belonged to these criteria. Given the longitudinal approach in most of the papers, it was important that the cases allowed rich data collection over time. The numbers of cases for each of the papers were selected based on the question posted, data, and method used during collection, either as many as possible to follow in-depth over time or specific groups of learners that could be contrasted.

3.6 Data collection

Data were collected from several sources, mostly primary data, such as interviews, longitudinal observations, self-assessments through a mobile app, self-assessments through drawings and diaries,

collected at several points, and assessments from people near the respondents (e.g., teachers). Secondary data complemented the primary data, and included various documents, strategies, plans for training programs, websites, social media, and protocols. Data collected for each study are explained in the individual papers.

3.7 Data analysis

Given the theory-building approach, most of the studies in this dissertation use grounded theory to analyze data. A sound theory describes and explains a phenomenon (Whetten, 1989), and iteration between data and theory is therefore important, such that data analysis is driven by an idea, but ideas must also be confirmed by the data (Shepherd and Sutcliffe, 2011). The papers in this dissertation use analysis techniques such as data reduction (Huberman and Miles, 1994), pattern matching and writing up the cases, conducting within and cross-case analyses with extensive and rich descriptions (Yin, 2003), and coding and theory-building that are grounded by data (Eisenhardt, 1989; Gioia et al., 2013; Strauss and Corbin, 1998). For some of the papers, analysis involved writing up cases, starting with a within-case analysis and then comparing cross-case tables, searching for patterns and relationships among concepts, and complementing interview data with notes and secondary data. For other papers, and consistent with the Gioia methodology, analysis involved using informants' voices to create themes and aggregated theoretical dimensions.

3.8 Triangulation

To assess reliability, triangulation of findings ensures rigor and deeper understanding (Denzin, 1970a, b). In this dissertation, data were triangulated using multiple sources of data, methodological triangulation in terms of combining techniques during data collection (i.e., longitudinal, real-time, and reflections), and theory triangulation in terms of combining theories to explain phenomena. Reliability also concerns whether the process and results of a study are consistent and stable over time and methods. To ensure rigor in this respect, every study had its own database, including interview transcripts and notes. Multiple sources of evidence were used to ensure validity, and since the research framework involved pattern matching, an iterative process that vacillated between theory and data, and theory triangulation in terms of several theoretical perspectives, internal validity ensured that findings made sense. Cross-case analyses and theoretical sampling helped ensure external validity and that conclusions are transferable to other contexts (Eisenhardt and Graebner, 2007; Yin, 2003).

CHAPTER 4

Dissertation Papers Summaries

4.1 Paper #1

Lindh, I. & Thorgren, S. (2015). *Learning and Teaching Entrepreneurial Mindsets: Bridging Research in Business and Education.* NOVA Publishers.

Paper 1 elaborates on what policy directions for training and development of young people's entrepreneurial mindsets and characteristics mean in practice. The paper is a literature review that contrasts how antecedents to entrepreneurial characteristics appear in business and education contexts. The review reveals that although an entrepreneurial mindset is defined as "the ability to sense, act, and mobilize under uncertain conditions" (Haynie, Shepherd, Mosakowski and Earley, 2010) in entrepreneurship and business literature, its meaning in education literature is unclear regarding both what it means in practice and what strategies and practices foster such mindsets. The idea of an entrepreneurial mindset in business literature is founded on the cognitive process of how people perceive, connect, and process information about the self, others, tasks, and uncertain environments. Education contexts highlight teachers' attitudes and behaviors, or learning environments, as the most relevant factors.

By focusing on three characteristics found in entrepreneurship literature—creativity, risk-taking, and self-efficacy—this paper compares these characteristics in terms of how business versus education literature conceptualizes antecedents. The review illustrates that education and business literature gives disparate attention to the three characteristics. For example, business literature relates creativity to motivation to carry out tasks and achieve goals, but creativity in education literature focuses on learning environments, and teachers' attitudes and strategies. Regarding risk-taking, business literature suggests that entrepreneurs cognitively frame and perceive risks differently than non-entrepreneur do, but education literature gives little practical guidance on how to train learners to frame risky situations. By comparing antecedents of an entrepreneurial mindset in business and education contexts, the components of entrepreneurial characteristics emerge as important to fostering an entrepreneurial mindset, rather than fostering the characteristics themselves. This paper addresses the research questions by highlighting (1) the importance of focusing on antecedents to

entrepreneurial characteristics and the components that comprise them, and (2) the role of cognitive awareness and learners' motivation to set challenging goals.

4.2 Paper #2

Lindh, I. & Thorgren, S. (2016). Critical Event Recognition: An Extended View of Reflective Learning. *Management Learning,* 47(5): 525–542

Paper 2 elaborates on the role of reflection in learning from critical events. Reflection, which refers to systematic, intentional, and disciplined meaning-making that moves a learner from one experience to the next with deeper understanding of its relationships with other experiences, is important to learning from experiences (Boud, Keogh and Walker, 2013; Cope, 2003; Fiol and Lyles, 1985). Research suggests that critical events, or unexpected events that disturb the normal course of activity (Argyris and Schön, 1978), are triggers for reflection and learning because they force individuals to combine experiences and new insights while rethinking existing thoughts and actions (Cope and Watts, 2000; Deakins and Freel, 1998). Although critical events trigger reflections only when an individual perceives an event as critical, knowledge is lacking on how individuals identify an event as critical, especially when a learner lacks task-specific experiences to which he or she can relate such reflections. Extant models of reflective learning focus on reactions to or actions generated from critical events, but they do not explain how recognition of such events is enacted. Since much entrepreneurial training and education is based on the idea that learners must be given entrepreneurial experiences to reflect on and learn from, lack of knowledge regarding the process preceding reflection is problematic. This inductive study explores the cognitive process through which individuals identify and learn from critical events, addressing two research questions:

RQ 1: What does the process preceding reflection on critical events look like?

RQ2: What kind of cognitive development can be expected when an individual has little task-specific experience with which to integrate a reflection to improve subsequent actions?

Drawing on inductive case study data in the context of an entrepreneurial training program in which informants were followed from preparing to start a business to becoming entrepreners, and literature on cognitive development, reflection, and learning, results extend existing reflective learning theory by introducing the concept of critical event recognition. The paper defines critical event recognition as the cognitive process through which individuals conclude that they are facing

a critical learning point that demands a change of thought and action. It illustrates how cognitive development progresses when a learner has little experience with which to integrate reflections from critical events. The paper contributes to the research questions of this dissertation by (1) highlighting the role of cognitive and emotional awareness, and the process preceding learning from experiences such as critical events, and (2) shedding light on the cognitive development this leads to for a learner who lacks entrepreneurial experiences from which to learn, such as grounded entrepreneurial self-concept, entrepreneurial mindset, and continuous reflective ability.

4.3 Paper #3

Lindh, I. & Thorgren, S. (2016). Entrepreneurship education: The role of local business life. *Entrepreneurship and Regional Development.*, 28 (5/6), 313–336.

Paper 3 explores how a learner's goals are influenced by the context in which goals are set. The paper focuses on whether local entrepreneurial activity and culture influence how entrepreneurship education and training for non-entrepreneurs are understood, and the practical implications this has at the local level. Building on the idea that education becomes entrepreneurial when it involves a partnership with practicing entrepreneurs, and students are given practical entrepreneurial experiences and opportunities to learn from in contexts beyond the classroom (Cope and Watts, 2000; Fayolle, 2013; Pittaway and Cope, 2007b), local contexts play a role in how entrepreneurship education is implemented and what result fostering new entrepreneurs leads to in practice. The paper deepens understanding of the interplay between entrepreneurship education/training and local contexts. The research questions addressed are:

RQ1: In what ways do policy documents on entrepreneurship education express the role of local businesses?

RQ2: How does local business life influence how policy recommendations for entrepreneurship education are construed and translated into practice?

The first question was addressed by analyzing policy documents at the supranational level, and the second by collecting and analyzing qualitative data on how municipalities translate such policy into practice. Findings indicate that collaboration between schools and business life strengthen rather than change existing local development paths because such collaboration transfers and embeds existing understandings of the value and meaning of entrepreneurship. Entrepreneurial learning not only involves learning from existing entrepreneurs, but changing and questioning existing ways of

doing things. The theoretical framework used in this paper builds on literature on regions as innovation policy targets, local culture, and especially research on social embeddedness, which refers to the nature, depth, and extent to which individuals are tied to local environments (Jack and Anderson, 2002). Complementing the cognitive perspectives in papers 1 and 2, this paper contributes to this dissertation's research questions by illustrating the importance of learners setting their own goals, and understanding them in relation to the context in which they are set.

4.4 Paper # 4

Lindh, I. Combining physical and virtual realities to enhance students' entrepreneurial development. Paper under journal review.

Paper 4 elaborate on the meaning and role of the physical context and environment for entrepreneurial learning to be enacted. The pedagogical approach to entrepreneurship in education uses teaching practices that stimulate students' entrepreneurial qualities and abilities, such as self-efficacy (i.e., the belief in one's own ability to perform a task) (Bandura, 1994), motivation, creativity, and risk-taking (European Commission, 2013a; Jones & Iredale, 2010; OECD, 1998). One precondition for the stimulation of such entrepreneurial qualities is simulation of a context that resembles that in which entrepreneurs operate, often involving students doing something in ways described as *for real* (Hindle, 2007; Jones & Iredale, 2010) and *in a real-world context* (Gibb, 1987; Pittaway and Cope, 2007).

Action and authentic learning environments do not, however, necessarily motivate youths and prospective entrepreneurs to set ambitious and entrepreneurial goals, or try to reach them. Using a longitudinal, interactive, exploratory, qualitative case study approach, this paper elaborates on the relationship between context and motivation by investigating how virtual worlds and new technology provide motivation for reaching high (learning) goals, and contribute to development of entrepreneurial attributes and characteristics. This study explores how educational efforts to relate to the world outside of school can be understood in relation to the mediating tools used, especially if real-world, physical contexts are a prerequisite for development of entrepreneurial abilities and attitudes among learners. This study addresses the following questions:

RQ1: How do various mediating tools in physical and virtual-world contexts contribute to making education more reality-based?

RQ2: How do various mediating tools contribute to development of entrepreneurial attitudes and abilities among primary school students?

This paper uses a different perspective than the previous paper by taking a sociocultural perspective on learning, and departing from Lev Vygotskijs (1978) work on the zone of proximal development (ZPD). This perspective was important since learning for entrepreneurs in a business context often includes events or experiences as triggers and mediators of new knowledge, whereas education highlights the role of the teacher, who mediates by giving learners experiences from which to learn. Focusing on learning mediators contributes to answering the research questions of this dissertation regarding (1) components and mechanisms of entrepreneurial learning, and (2) regulation of personal motivation. This is accomplished by illustrating that motivation is central to entrepreneurial learning, and that the regulation of such motivation for setting high, demanding goals is more important than the physical environment for enabling development of learners' entrepreneurial attitudes and abilities. As for paper 3, results of this study highlight the role of setting goals and understanding them in relation to the context in which they are set for development of learners' entrepreneurial attributes and characteristics.

4.5 Paper # 5

Lindh, I. Entrepreneurial development and the different aspects of reflection. *The International Journal of Management Education.*

Paper 5 elaborates further on the role of reflection and experiences for entrepreneurial learning and development of entrepreneurial behavior. Using a longitudinal, exploratory case study design, this study explores whether and how reflective practices that are part of entrepreneurship training program, change, or reproduce prior attitudes, and the different paths of entrepreneurial development that learners follow as a result.

The paper takes departure from the notion that entrepreneurial behavior is based on an awareness of the environment in which one operates, the ability to adapt to that environment while changing it, and the fact that literature on entrepreneurship education is limited regarding examination of how reflection contributes to changing the individual student and his/her environment. A growing body of evidence demonstrates the significance of experiences and context in shaping prospective entrepreneurs' perceptions of entrepreneurship, and their openness to entrepreneurship training. Students' experiences with entrepreneurship, or lack of them, may therefore work as a barrier to,

or motivating force for, entrepreneurship education. Students' continuous reflective practices (Jones and Iredale, 2010; Moberg, 2014) have, however, been suggested to make them able to construct entrepreneurial learning and development by using previous experiences to understand new ones (Dewey, 1910). Less is known about how such reflections occurs, and how they influence students' perceptions of and development through entrepreneurship education.

This paper examines initial perceptions of entrepreneurship among learners without entrepreneurial experience, and explores the role reflection during entrepreneurial training plays in changing such perceptions. The research questions for this study are:

RQ1: How do primary school students' perceptions of the meaning and value of entrepreneurship education vary?

RQ2: How do reflective practices change these perceptions among primary school students?

The focus on experiences, perceptions, reflections, and goals led to a theoretical framework for the study, including both the thoughts of Bourdieu (Bourdieu, 1980; Bourdieu and Passeron, 1990; Bourdieu and Stierna, 1997) and Dewey (Dewey, 1938, 1997, 2004). Both argue for a sociocultural perspective on learning, meaning that learning is part of people's everyday lives and cannot be confined to an education context. They also highlight the role of reflection in learning. Despite similarities in their thoughts, there are also distinctions. This paper elaborates on these differences, and findings add to theoretical development in the field of entrepreneurial learning by combining Dewey and Bourdieu into a framework for analyzing and understanding the different aspects of reflection during entrepreneurship training, and the disparate outcomes reflections yield.

In regards to the research questions for this dissertation, findings from this study suggest that entrepreneurship education should focus more strongly on creating a nexus between students and their own perceptions of opportunities for development and goals (Shane, 2003), and on the ability to question and rise above what others present as comfortable or familiar ways of doing things, (Kirzner, 1999) through self-regulation. This paper bridges the cognitive approaches in papers 1 and 2, while also highlighting the role of context for setting goals, something that accords with papers 3 and 4. Overall, this paper suggests that reflection lead students to assess the future they anticipate for themselves, and the ability to construct it as they want it to be (Bourdieu, 1990; Rotter, 1966) by being aware of their thoughts, emotions, and motivations to reach desired goals.

CHAPTER 5

Theorizing on Components and Dynamic Processes of Entrepreneurial Learning

Based on the findings in this dissertation, and by combining literature on educational psychology and entrepreneurship, this chapter theorizes on components to and dynamic processes of entrepreneurial learning. The chapter develops three propositions and a dynamic model that specifies how entrepreneurial learning can be understood as a process during which learners simultaneously and actively regulate their cognitions, emotions and motivations to reach goals, and that this in turn leads to development of entrepreneurial mindsets.

5.1 Self-regulated learning

Results and analysis from the five papers suggest that the essence of entrepreneurial learning cannot be understood as a reactive process during which prior experiences trigger cognitive processing, task-related competency development, and emotional reactions. Instead, components and mechanisms emerged as important to understanding how cognitive processing, task-based learning, and emotional reactions enable reflections and learning. Awareness of cognition, emotion, and motivation was shown to be important initiator of the entrepreneurial learning process. Indeed, such awareness enables self-regulation of thoughts, emotions, and motivation to achieve goals, and the ability to understand goals in relation to the context in which they are set. This process cannot be understood only in relation to entrepreneurship literature, with a focus on experiences as prerequisites for reflection and learning, lack of explanations for how learners know what experiences to learn from, and the tendency to neglect proactive and goal-striving elements of learning. Instead, guidance for analysis of findings was found in educational psychology literature, particularly on self-regulated learning.

Self-regulated learning (SRL) is "self-generated thoughts, feelings and actions which are systematically oriented toward attainment of ones goals"(Schunk and Zimmerman, 1994, p ix). It is a process during which learners attempt to attain personal goals by systematically generating thoughts, actions, and feelings, and considering the context in which these occur (Boekaerts, 2002).

In conjunction with entrepreneurship literature, this guided analysis of and theory development for entrepreneurial learning.

SRL is a theoretical assumption and fundamental psychological construct (Boekaerts, 1997, 2002; Schunk, 1989; Thoresen and Mahoney, 1974; Zimmerman, 1989). It is a self-directed process, involving cognitive, affective, motivational, and behavioral components that provide an individual with the capacity to transform his/her mental abilities and adjust thoughts, emotions, and actions to enhance individual performance and achieve goals in light of changing conditions (Boekaerts, 2000; Schunk and Zimmerman, 1998; Zimmerman, 2008; Zimmerman, Boekarts, Pintrich and Zeidner, 2000). In contrast to entrepreneurial learning literature, SRL conceptualizes learning as an active process during which individuals are cognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman, 2002). The emphasis is on goal striving within a learning context (Schunk and Zimmerman, 2012; Sitzmann, Ely, Brown and Bauer, 2010).

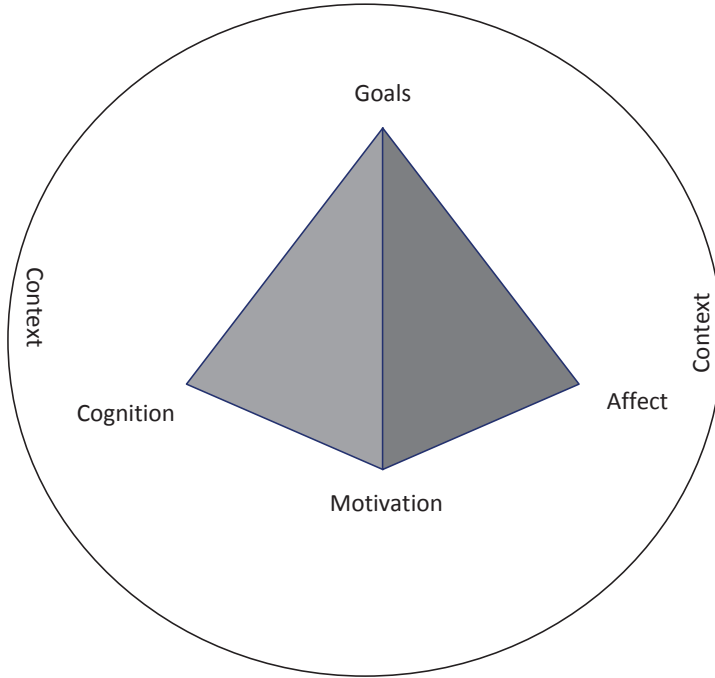## 5.2 Entrepreneurial learning as a self-regulated process

5.2.1 The active process of combining cognitive, affective, and motivational drivers of learning

Findings from the papers in this dissertation illustrate that entrepreneurial learning involves several interrelated mechanisms. Literature on entrepreneurial learning emphasizes learning as either driven by cognition, tasks or affect *or* – less commonly – by motivation, and as related to the consequences of experiences, but SRL literature suggests that individuals who self-regulate participate proactively during learning—cognitively, emotionally, and motivationally – simultaneously (Schunk and Zimmerman, 1994; Zimmerman and Schunk, 2012). Instead of describing the aspects of learning as drivers or causes of learning, as entrepreneurial learning literature does, they are in this dissertation described as components of learning that through interrelation make learning occur. Such proactive and self-directed learning implies use and development of strategies described as personal methods aimed at acquiring, organizing, and transforming new knowledge and skills (Nota, Soresi and Zimmerman, 2004; Zimmerman, 1989) to achieve goals (Zimmerman, 2008). Thus, by learning to regulate the dimensions of learning, one increases the ability to learn from experience and critical events, and perform tasks.

5.2.2. The goal-directed nature of learning

Another difference between entrepreneurial learning and SRL is its goal-directed nature. Setting of goals, and understanding those goals in relation to the context in which those goals are set, is an important dimension of the papers in this dissertation. Goals are central to entrepreneurship research, and goal-setting links to performance (Segal, Borgia and Schoenfeld, 2005), success (Frese, Krauss and Friedrich, 2000), and effort (De Clercq, Menzies, Diochon and Gasse, 2009). Given this focus on goals for entrepreneurial outcomes, it is surprising that learning how to achieve them has not received more attention in the literature on entrepreneurs learning. In SRL, goals are central to learning; learning is characterized as a conscious process, during which a learner sets goals and then self-regulates to select and develop strategies, and monitor the effectiveness of those choices in relation to the goals (Zimmerman, 2008). Since SRL has been used primarily in educational psychology literature, emphasis is on the role of educators to both set goals and help students acquire self-regulating skills such as cognitive, motivational, and behavioral self-motivation (Schmitz and Wiese, 2006; Stoeger and Ziegler, 2007; Zimmerman, 2008) to improve academic performance (Nota et al., 2004) and prepare students for life after school. Goals are set not only by students, but are also set by the school or teacher, given to students throughout the learning process. This accords with literature on entrepreneurship education and training, in which the teacher or environment is characterized as central to students' entrepreneurial development. In entrepreneurship literature, however, goal-setting is characterized as a dynamic, individual, and cognitive process, neglecting the role of context when explaining why some goals are set and other are not.

Figure 2: The didactic pyramid of Entrepreneurial learning: An active, self-regulating process in which cognitive, motivational, and affective factors interrelate to achieve goals.

As illustrated in Figure 2, this dissertation suggests that better understanding of entrepreneurial learning is possible by studying the entrepreneurial learning process as an active, self-regulating process during which cognitive, affective, and motivational components interrelate to achieve goals—goals that might be dynamic in content but that encompass both learning and outcome dimensions. The term *didactic triangle* has been used to analyze and describe teaching situations in terms of its three components—the learner, teacher, and content—illustrated by a triangle with interrelations between corners (Kansanen and Meri, 1999). The triangle shows that the mediator of learning, the learner, and the content of learning must be studied as a whole. Building on this terminology, the didactic pyramid of entrepreneurial learning (Figure 2) illustrates relationships among components that enable learning, and elements that make it entrepreneurial. Thus, awareness of one's cognition, motivation, and affect in relation to personal goals and context describes the didactic pyramid of entrepreneurial learning. Next each of these components are described,

including how regulation of them enables experiential, task-driven, affective learning for development of entrepreneurial mindsets and actions.

5.3 Components of entrepreneurial learning

Research highlights a number of components of self-regulated learning, many of which are highly correlated (Schunk and Zimmerman, 1994). Although SRL has been studied from a range of theoretical perspectives, the role of goal-setting for self-regulated learning to occur has been highlighted across all disciplines (Sitzmann et al., 2010). This dissertation suggests that the components of entrepreneurial learning, defined as the simultaneous and active regulation of cognitions, emotions, and motivations to achieve goals, are (1) cognitive awareness, (2) motivational awareness, (3) affective awareness, and (4) the ability to set personal goals while understanding their relationships to the context in which they are set. This conceptualization encompasses the core features of most definitions in SRL literature (Boekaerts, Maes and Karoly, 2005; Boekaerts, 2000; Efklides, 2011; Pintrich, 2000; Zimmerman, 2002, 2008), while taking entrepreneurship literature, with its cognitive and individual perspectives, into consideration. It also captures the role of sociocultural learning theories regarding how goal-directed behaviors include multiple, interrelated processes. Below I describe the theoretical foundations of each of the components, and how they have been characterized in entrepreneurship and educational psychology literature. Relating literature to findings from the papers in part 2, a proposition is offered regarding components and mechanisms of entrepreneurial learning.

5.3.1 The cognitive component

Results from this dissertation suggest that the cognitive component is central for entrepreneurial learning to occur. The cognitive perspective on learning draws from Bandura (Bandura, 1982, 1986; Bandura and Walters, 1977) and the social cognitive theory of learning. The theory explains how individual behaviors are determined by the interaction among personal, behavioral, and environmental factors. The theory is the bases of SRL; self-efficacy is a motivational construct, and monitoring of previous experience in turn is a personal, cognitive process, whereas model learning is part of the contextual or environmental influence of learning. Cognition describes how individuals process information, and cognitive awareness refers to thinking about one's own thoughts, what one knows, and the current state (Hacker, Dunlosky and Graesser, 2009). It is a higher-order process that organizes what individuals know and think about themselves, a task, and the environment in

which they operate to achieve goals (Flavell, 1979; Flavell, Miller and Miller, 1993). Cognitive awareness does not explain why an individual makes a certain decision, but explains the framing of a decision and a reflection on which alternatives are available. Reflection is essential to cognitive development (Argyris and Schön, 1978; Cope, 2005; Dewey, 1997; Flavell et al., 1993) since it refers to the disciplined process of giving experiences meaning and value in relation to other experiences (Dewey, 1997; Rodgers, 2002).

Cognitive awareness is central to self-regulated learning (Clark & Zimmerman, 2014) because it highlights the need to be adaptive and adjust to changing demands and environments beyond what is learned, processing information while self-assessing (Bandura, 1969; Zimmerman, 1986, 1989). Influence from the environment means that learners develop regulating techniques through others in their environments, such as teachers or models (Clark & Zimmerman, 2014). The importance of organizing and transforming knowledge, skills, and attitudes in relation to the context they reside in has also been associated with other related sociocultural learning theories, especially that from Vygotsky (Bartolomé et al., 2007).

In educational psychology literature, cognitive awareness describes the feelings, judgments, and thoughts of which people are aware (Efklides, 2001, 2006). Cognitive awareness is evident before solving a problem (e.g., perceptions of knowing, not knowing, and familiarity with a task), during task processing (e.g., estimation of effort, time needed to complete a task, and thoughts about strategies), and during reflection after a task is completed (e.g., evaluation of a solution or strategy). These three phases interrelate strongly with affect and motivational processes.

In entrepreneurship literature, entrepreneurial cognition explains the knowledge structures people use to assess, judge, and decide when evaluating options throughout the entrepreneurial process (Mitchell et al., 2002, 2004). Researchers use the term *cognitive adaptability* to explain the ability to be cognitively dynamic, flexible, and self-regulating in uncertain and rapidly changing environments, and able to sense variations in the environment and choose among decision frameworks to select alternatives for interpreting, planning, and implementing a variety of personal, social, and organizational goals (Haynie, Shepherd and Patzelt, 2012). The logic is that the ability to detect and adapt to changing conditions differs among individuals; people with cognitive adaptability transform new information into new knowledge, and those lacking it cannot (Baron and Ward, 2004). Being aware of one's cognitive processing, and the ability to adapt it in relation

to changing conditions, represents an important entrepreneurial resource (Haynie et al., 2012) for experiential learning, and it can be taught and enhanced (Schmidt and Ford, 2003). Although cognitive awareness is a cognitive process, its relationship to a context in which an entrepreneur operates, and the motivation of that individual to interpret that context, suggests that it interrelates with other components.

5.3.2 The affective component

This dissertation suggests that affect enables entrepreneurial learning. The affective dimension of learning occurs when individuals become aware of emotions in relation to a task, such as feeling interest, disappointment, shame, or pride (Efklides, 2006). Affective experiences relate to cognitive awareness in terms of knowing, perceiving problem difficulties, or confidence (Efklides, 2011). However, the two components also have important differences. The metacognitive dimensions, including perceptions of difficulties and challenges, lead to increases or decreases in effort, changes to strategy, or abandonment of a task even if it is interesting and imbues individual confidence (Efklides, 2006). The degree to which individuals find interest and confidence in a task influences whether they continue or quit. Regarding the cognitive dimension and in contrast with much entrepreneurial learning literature, educational psychologists suggest that affective experiences do not need to be reactive; they can occur before a task is complete (e.g., interest or dislike), while being completed (e.g., interest and emotional awareness), and after completion (e.g., satisfaction or confidence). Affective experience before engaging in a task can manifest as interest or dislike, and during a task as interest and awareness of emotions. The retrospective experience is, in turn, about satisfaction or confidence.

5.3.3 The motivational component

Motivation emerged as important to understanding entrepreneurial learning, central for self-regulated learning to occur (Efklides, 2011) and important to individual ability to control and enhance effort (Pintrich and DeGroot, 1990). This relates it to cognitive engagement (Ames and Archer, 1988), and the finding that motivation sustains individual perceptions of the ability to perform a task or achieve goals (Bandura and Walters, 1977; Zimmerman et al., 2000). Despite its interrelation with cognition, motivation does not correlate with cognition; it is an important but separate component (Sperling, Howard, Staley and DuBois, 2004). Learners might, for example, develop cognitive strategies, but their belief in themselves and their abilities leads them to use or not use such strategies (Pintrich and DeGroot, 1990).

In entrepreneurship literature, self-regulation is treated as a motivational construct, reducing discrepancies between a current state and goals (Higgins, Shah and Friedman, 1997; Shane, Locke and Collins, 2003). This research investigates the role of motivation for venture growth (Baum and Locke, 2004), performance and persistence (Zhao and Wu, 2014), and business survival (Rey-Martí, Porcar and Mas-Tur, 2015). Learning is an outcome in itself, but the outcome learning leads to has received little attention. In contrast, educational psychology literature suggests that motivation enables learners to acquire knowledge and skills by implementing strategies, rather than reacting passively to teachers' instructions (Nota et al., 2004; Zimmerman, 1989). Motivation is central to assumptions associated with SRL—that learners are motivated to attain goals, leading to persistence in generating thoughts, feelings, and actions to attain those goals while working systematically toward them (Boekaerts, 2002; Schunk and Zimmerman, 1994). This dissertation suggests that motivation is a component of entrepreneurial learning. Motivation for learning, in relation to cognitive and emotional awareness, enables desired (learning) outcomes to be achieved.

5.3.4 Proposition on the role of self-regulation in entrepreneurial learning

Results from the papers in this dissertation suggest that cognition, affect, and motivation explain how entrepreneurial learning is enacted. In contrast to entrepreneurship literature, in which entrepreneurial learning is triggered by one of these components, educational psychology literature suggests that learning is an active, self-regulated process of several components. This dissertation illustrates that awareness of cognition, affect, and motivation enables a learner to self-regulate, which is a process of learning. Combining these findings with literature on entrepreneurship and self-regulated learning, the first proposition of this dissertation is:

Proposition 1: Entrepreneurial learning is comprised of the simultaneous regulation of cognition, emotion, and motivation to achieve goals.

5.4 Goals and learning

Results from this dissertation illustrate the role of active goal-setting and goal-striving for entrepreneurial learning to occur, corroborating the self-regulated perspective on learning and emphasizing the learner as an agent of learning (Boekaerts, 1997; Zimmerman, 2000, 2002). By relating literature to findings discussed in part 3, a proposition is offered that summarizes the arguments of this dissertation regarding the role of goals during entrepreneurial learning. Goals relate to self-regulation since they set standards for accomplishing a task, and provide criteria for evaluating,

monitoring, and guiding self-regulative behaviors (Bandura and Walters, 1977; Locke, 1996; Locke and Latham, 1990; Sitzmann et al., 2010). Goals influence and are influenced by the dimensions in the didactic pyramid of entrepreneurial learning: affect in that goals frame self-evaluation and self-satisfaction of performance), motivation because challenging goals are motivating and require individuals to do more to be satisfied, and cognition because it relates to perceptions of success, difficulties, and meaningfulness (Locke and Latham, 2002). Goals initiate action to reach goals, but the cognitive component makes individuals set more challenging goals and develop the cognitive strategies to reach them (Bandura and Walters, 1977; Locke and Latham, 2006).

Goal-setting theory (Locke, 1996; Locke and Latham, 1990, 2006) explains the mechanism by which goals and goal-setting influence individual performance. Goals direct attention and effort to achieve desired outcomes, especially when a goal is specific and the individual is committed to reaching it (Locke and Latham, 2002). In relation to learning, goals lead individuals to do their best (Seijts and Latham, 2001) and thereby focus on the skills needed to reach the goal, rather than on performance. Thus, goals in the context of learning are dynamic and directed toward acquiring the knowledge needed to reach subsequent performance goals. It is therefore strongly related to cognitive awareness in terms of planning, monitoring, and evaluating progress toward goal attainment and the motivation to persist toward them (Latham and Brown, 2006; Locke and Latham, 2006)

Entrepreneurship research relates goals to an specific outcome, focusing on the outcome to which a behavior leads, rather than the knowledge needed to get there (Bird, 1988; De Clercq et al., 2009). Goals have been related to cognition since entrepreneurs perceive and give meaning to the environment in the context of goal orientation (Haynie et al., 2012), and the motivation to reach desired outcomes. Affect has been related to entrepreneurs' effort to reach a goal (Baron, Hmieleski and Henry, 2012; Foo, Uy and Baron, 2009). Less attention has been on the interrelation of cognitive, motivational, and affective processes, and goal-striving from a learning perspective.

5.4.1 The role of goals in self-regulated entrepreneurial learning

Educational psychology literature and SRL have three similarities and differences in comparison to entrepreneurship literature on goals. In relation to goals, SRL emphasizes learning as part of achieving personal goals (Pintrich, 2000; Zimmerman, 2002; Zimmerman and Schunk, 2012), suggesting that self-regulated learning involves a process during which learners use self-regulating

learning strategies to reach goals (Clark and Zimmerman, 2014). Dewey (1997, 2004) describes education and learning as an act of democracy, emphasizing individual freedom of choice. An individual's experiences and intentional acts are at the center of processual development and learning (Dewey, 1938, 1997), a perspective close to that of entrepreneurship researcher. This accords with findings from this dissertation that suggest that the ability to adjust to changing conditions makes self-regulating strategies important for learning regarding continuing toward goal attainment; goal-striving is an active, dynamic process, rather than a mean-end activity.

Goals in context

Although most entrepreneurship research uses a cognitive perspective of goal-setting, educational psychology research uses a sociocultural (Bourdieu and Passeron, 1990; Dewey, 1938, 1997; John-Steiner and Mahn, 1996; Vygotsky and Rieber, 1988) or constructivist approach (Boekaerts, 2002), focusing on the contexts in which individuals set goals. Bourdieu and Dewey argue that individual reflections are important to learning, but that learning is part of people's everyday lives and cannot be confined to training or a context. Bourdieu describes learning as the reproduction of dominated understandings, questioning the intentionality of individual actions (Bourdieu, 1980; Bourdieu and Passeron, 1990). In self-regulated learning literature, researchers focused initially on academic, task-related goals formulated by teachers, ignoring the personal and socioeconomic goals of learner. Boekarts (2002) argues that it is impossible to understand the goal-setting strategies of learners without considering socioeconomic contexts since they influence the extent to which task goals are perceived as attractive. Personal goals are therefore central to understanding how and why learners self-regulate.

In sociocultural learning theory, and especially Vygotsky's research on the zone of proximal development (Vygotsky, 1978, 1980), learning is about closing the gap between actual and potential developmental levels. The distance between these types of development is determined by learners' interactions with others in their environments, such as a teacher or peers who help a learner frame, select, focus, and understand the environment (Lidz, 1991). Thus, a higher level of learning and thinking occurs through interactions with others—so-called mediating tools.

SRL literature highlights the role of others in setting goals and for motivating learners to reach them. Some research even distinguishes broad and narrow conceptualizations of SRL. In the broad definition, learning is self-regulated only when a learner is free to decide when, where, and how to

learn (Steffens, 2006), and the narrow definition refers to learners' ability to plan, monitor, and evaluate learning activities when a goal is set by others (Carneiro, Lefrere, Steffens and Underwood, 2012). Boekarts (2002) suggests that individuals are driven by a network of goals, and are therefore separated among personal goals, focused on an action in pursuit of desired consequences and higher-order goals. From this perspective, SRL explains how learners relate personal goals to environmental demands (Boekarts, 2002). Entrepreneurship literature focuses on the role of the entrepreneur when choosing challenging goals. Although entrepreneurship research demonstrates that entrepreneurs' goals adapt due to changing environments (Haynie et al., 2012), little research examines whether goal-setting is influenced by context as much as the cognitive assets of the individual are.

Goals in self-regulated entrepreneurial learning
Similarities exist between entrepreneurship literature and educational research when studying sociocultural learning, especially regarding faith in the experiences of individuals and training as facilitators of reflective ability, personal development, and freedom of choice. However, a subset of research on critical sociology and education highlights the need for critical thinking and the ability to challenge established ways of thinking, emphasizing reflection as a force of societal change when combined with individual development (Bourdieu and Wacquant, 1992; Calhoun, LiPuma and Postone, 1993). Entrepreneurship research, however, shows little interest in investigating the network of goals and dynamic process of goal-striving. Since entrepreneurship is transformational and about creating, discovering, evaluating, and exploiting new opportunities across contexts (Shane and Venkataraman, 2000), goals and goal-striving are active and dynamic processes of self-regulation and awareness concerning goals and the context in which they are set.

5.4. 1 Proposition on the role of goals in entrepreneurial learning
Although extant literature suggests that learners, students, and prospective and active entrepreneurs have personal goals that give purpose to self-regulation and adaptation (Haynie et al., 2012; Zimmerman, 2000, 2002), and that these connect to the context and societal norms in which they appear (Boekaerts, 2002; Bourdieu and Passeron, 1990), less attention has been on the dynamic goals that are part of entrepreneurial learning. This dissertation connects multiple theoretical perspectives, and uses four qualitative datasets to assess the role of goals during entrepreneurial learnings. It argues that learners are influenced by the interrelation of personal goals and goals in their environments, but that self-regulated entrepreneurial learning enables learners to rise above this and set personal goals, and understand them in relation to the context in which they are set.

This ability enables learners to move beyond what is expected and break current assumptions and habits while doing things differently. This in turn stems from motivational awareness concerning what context a learner wants to create. Therefore, the second proposition is:

Proposition 2: Striving to attain personal goals while understanding the goals in relation to the context in which they are set is required for entrepreneurial learning to occur.

5.5 The dynamic process of entrepreneurial learning

5.5.1 SRL in Entrepreneurship—not a stage-wise process

Entrepreneurial learning is proceeded by cognitive, motivational, and affective awareness, and setting personal goals in relation to the context in which they are set. Thus, results suggest that learning does not occur due to the entrepreneurial process, but develops before engaging in a venture, which enables learning before and during the entrepreneurial process. Findings from section 3 led to development of a proposition that summarizes the arguments of the dissertation regarding the outcome to which entrepreneurial learning leads.

Although SRL literature contributes to understanding the components of entrepreneurial learning, its process and what learning is enabled, entrepreneurial learning must also be investigated with guidance from entrepreneurship literature because studies of self-regulation build on the idea that it is a planned and stage-wise process, in contrast to iterative and dynamic learning that unfolds during the entrepreneurial process. Pintrich (2000) suggests that SRL consists of four phases during which a learner plans, self-monitors, regulates, and focuses on cognition, motivation, behaviors, and context. Zimmerman (2000) argues that SRL runs through the phases of forethought, performance, and self-regulation.

Entrepreneurship is not a stage-wise process, but dynamic and distinguished by uncertainty and changing circumstances. This means that it might be difficult for entrepreneurs to plan learning. The learners' (entrepreneur or non-entrepreneur) ability to adjust thoughts and behaviors in relation to goals, regardless of the challenges encountered, distinguishes entrepreneurial learning. This dissertation argues that doing so strengthens development of entrepreneurial mindsets. I now describe how self-regulation of cognition, emotion, and motivation enables learning during the entrepreneurial process, and the outcomes it leads to in terms of development of an entrepreneurial mindset.

5.5.2 Self-regulation and experience-driven learning

Since entrepreneurs learn from prior experiences, and entrepreneurial training for prospective entrepreneurs focuses on giving learners experiences from which to learn, there is need to know more about how the process preceding reflection and learning from experiences relates to entrepreneurial learning outcomes, such as how learners develop cognitions from critical events when they lack experience to which they can relate reflection. Critical events are unexpected events that disturb the normal course of actions (Argyris and Schön, 1978). Such events trigger cognitive development and force individuals to move beyond tacit judgments, knowledge structures, and skills to deal with the situation at hand (Mitchell et al., 2002; Neisser, 2014). These events trigger reflections about existing thoughts and actions (Cope & Watts; Deakins & Freel, 1998), but even if critical events are an important source of learning, they lead to reflection and learning only when the individual identifies the event as critical (Dewey, 1910, Cope & Watts, 2000). Extant research does not explain how individuals recognize an event as critical, which is cumbersome since non-entrepreneurs and nascent entrepreneurs experience difficulties understanding what events to learn from and how.

This dissertation contributes to entrepreneurial learning and critical event literature by suggesting that cognitive and affective awareness are essential to recognizing from what critical events to learn. Extant literature highlights the role of critical events as triggers of entrepreneurial development, but this dissertation suggests that this is preceded by the ability to self-regulate cognition and emotionally. Combined with motivation, doing so strengthens a learner's entrepreneurial mindset, or the ability to detect, act, and preserve in uncertain conditions (Haynie et al., 2010) as a learning outcome.

5.5.3 Self-regulation and affect-driven learning

In entrepreneurship literature, the emotional dimension of learning associates with critical events, such as failures, that are emotional for entrepreneurs experiencing them. Regarding a theoretical foundation, research complements social cognitive theory with psychological theories concerning grief and coping (Shepherd, 2003; Shepherd, Covin and Kuratko, 2009a). Literature on learning from business failures suggests that failures cause strong negative emotions that interfere with an entrepreneur's ability to learn from failure (Shepherd, 2003). The ability to be aware of one's emotions and regulate them is therefore essential to learning (Kanfer, Ackerman and Heggestad, 1996; Pintrich, 2000; Shepherd, 2003; Shepherd et al., 2009b; Ucbasaran, Shepherd, Lockett and

Lyon, 2013) because when difficulties occur, a learner must direct attention toward the task and persist, demanding the ability to combat feelings such as anxiety or worry (Keith and Frese, 2005). This accords with self-regulated learning, emphasizing the importance of being able and motivated to regulate thoughts and emotions to work toward attaining goals.
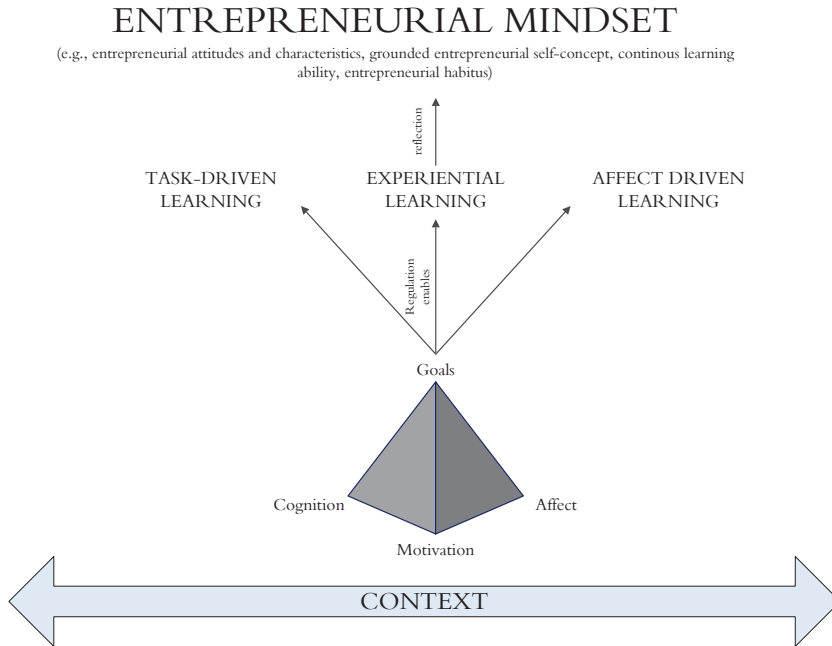
5.5.4 Self-regulation and task-driven learning

The majority of entrepreneurial training literature conceptualizes an entrepreneurial mindset as a competency or skill in which a teacher or context plays more of a role in development than a cognitive process within the learner does (Lindh and Thorgren, 2015b). This suggests that entrepreneurial development is task-driven learning, in which a learner decides to develop entrepreneurially and engage in training to do so. Since research illustrates that the mindsets of successful entrepreneurs are founded on their cognitive abilities to process, perceive, and connect information about themselves, a task, and an uncertain environment, making them act to achieve challenging goals (Mitchell et al., 2002), development of a task-specific mindset involves cognitive processes and motivation to learn a task.

5.5.5 The development of entrepreneurial mindset and attributes

Entrepreneurship literature suggests that the entrepreneurial mindset is comprised of a learner's cognitive adaptability, such that the learner is dynamic, flexible and self-regulating during cognition and uncertain tasks (Haynie et al., 2010). This is echoed in entrepreneurial education and training literature, which suggests that development of an entrepreneurial mindset relates to an individual's ability to recognize opportunities and threats, and react to them rapidly, even in uncertain situations (Ireland et al, 2003 ; McGrath & Macmillan, 2000). This dissertation suggests that critical event recognition—the cognitive process by which individuals conclude that they are confronted with a critical learning point that demands a change in their thoughts and actions (Lindh and Thorgren, 2015a)—is critical both for learning to occur in the entrepreneurial process, and to development of entrepreneurial mindsets.

Figure 3. The components to and Dynamics of Entrepreneurial Learning

ENTREPRENEURIAL MINDSET

(e.g., entrepreneurial attitudes and characteristics, grounded entrepreneurial self-concept, continous learning ability, entrepreneurial habitus)

reflection

TASK-DRIVEN
LEARNING

EXPERIENTIAL
LEARNING

AFFECT DRIVEN
LEARNING

Regulation
enables

Goals

Cognition

Affect

Motivation

CONTEXT

In addition to the cognitive processes caused by critical events, emotions influence individuals´ evaluation of themselves in relation to a role, for example, of how prospective entrepreneurs identify with the role of being an entrepreneur (Farmer, Yao and Kung-Mcintyre, 2011). Grounded self-concept refers to experience-based beliefs and feelings in reference to oneself aligned with a task and behaviors (Farmer et al., 2011). One idea associated with entrepreneurship training and education is developing a learners´ values, attitudes, and beliefs associated with the entrepreneurial role to become part of the learners´ self-identification (Hoang and Gimeno, 2010). Entrepreneurs operate in uncertain environments that demand persistence and the ability to understand, interpret, and process emotions about oneself and a task in relation to emotions experienced during entrepreneurship. Critical events enact an emotional process, leading to changes to learners' identity

beliefs and how they perceive themselves as entrepreneurs. Thus, recognizing experiences as critical (learning) events strengthens the grounded self-concept of being an entrepreneur.

Results from this dissertation demonstrate that reflection is important to self-regulated entrepreneurial learning. Reflection refers to systematic, intentional, disciplined meaning-making that moves a learner from one experience to the next with deeper understanding of its relationship with and connection to other experiences, helping individuals improve their actions by learning from mistakes (Cope, 2003; Fiol and Lyles, 1985). Reflection associates with cognitive development such as new ways of thinking and acting, improved information-processing, and changing frames of references (Argyris and Schön, 1978). Strong emotions also relate to reflection, such that critical events such as failures cause strong negative emotions that lead to reflection about different ways of doing things (Cope, 2005; Shepherd, 2003). However, although reflection is important to learning, research treats it as a reactive activity, after experiences have occurred. Little is known about how learners know what experiences to reflect on and learn from. Results from this dissertation suggest that reflection is important to learning, but that self-regulation enables it. This dissertation thereby illustrates that self-regulating of cognition, affect, and motivation is essential to reflecting on content and meaning. Thus, learning about what to learn from, and how, during entrepreneurship involves emotional awareness to detect critical events and learn from them, cognitive awareness since it involves reflection and new ways of thinking, and motivation to develop oneself further to achieve goals. This in turn leads to development of a learner's entrepreneurial mindset.

5.5.6 Proposition for dynamic entrepreneurial learning

Extant literature emphasizes entrepreneurial experience as a prerequisite for entrepreneurial learning, and therefore characterizes entrepreneurial experience and attributes as being the cause, means, and result of entrepreneurial learning. Little attention has been paid to how such abilities to learn develop, and how people without entrepreneurial experience prepare for entrepreneurship and developing entrepreneurial characteristics and attributes while doing so. This dissertation explains how simultaneous and active regulation of cognitions, emotions, and motivations develop learners' entrepreneurial mindset because self-regulated learning prepares for and enables learning from a variety of experiences in uncertain and rapidly changing contexts of entrepreneurship. Therefore, the third proposition of this dissertation is:

Proposition 3: Self-regulation of cognition, affect, and motivation to achieve goals enables experience-, task-, and affect-driven learning, resulting in development of an entrepreneurial mindset.

CHAPTER 6

Discussion and Future Research

This section discusses findings from the five papers and the proposed model of components that precede and enable entrepreneurial learning. The papers are separate but parts to a theoretical model that explains how and why entrepreneurial learning occurs. Discussed in the introduction, the papers include both entrepreneurship as a way of thinking and acting, and cognitive, sociocultural, and socio-constructivist approaches. Acknowledging that these perspectives are often seen as impossible to meld, this dissertation suggests that entrepreneurial learning is difficult to understand without including such perspectives, and that the contribution of this dissertation lies in highlighting interrelations among them. Paper 1 examines how entrepreneurial learning has been conceptualized disparately in entrepreneurship literature, focusing on how entrepreneurs learn, and in entrepreneurship and enterprise education literature, on learning in entrepreneurial ways and preparing for entrepreneurship. The paper takes a cognitive approach to explain entrepreneurial learning. Paper 2 illustrates the role of cognitive, affective awareness, and reflection in recognizing critical learning events, and how they lead to development of entrepreneurial characteristics. Paper 3 explores the role of context when setting entrepreneurial goals, and highlights the importance of learning in understanding the interrelations between one's entrepreneurial goals and the cultural embeddedness of those goals. Papers 4 and 5 highlight the interrelation of cognitive and contextual variables, especially by illustrating a need for motivation for learning, and how such motivation relates to cognition, actions, and setting personal goals and understanding them in relation to the environment in which they are set.

6.1 The components to and process of entrepreneurial learning

Literature on entrepreneurial learning conceptualizes learning as cognitive, task-related, affective, or motivationally driven, and related to the consequences of experiences, often neglecting motivation during learning and how goals for learning and development are influenced by the context in which they are set. Findings from this dissertation suggest that entrepreneurial learning is an active and simultaneously self-regulated process during which individuals participate proactively in learning—

cognitively, emotionally, and motivationally. Thus, instead of describing aspects of learning as drivers or causes for learning to occur (as in entrepreneurial learning literature), they are described as components of learning that by their interrelation enable experience-based, affective, and task-based learning, which in turn leads to development of entrepreneurial mindset and actions.

6.2 Contribution of dissertation

This dissertation explore the components and dynamic process of entrepreneurial learning. Research suggests that entrepreneurship is relevant to everybody; it is a way of thinking about one's self and the world (Sarasvathy and Venkataraman, 2011; Shane and Venkataraman, 2000). By defining what entrepreneurial learning is, the dissertation contributes to understanding how entrepreneurial mindsets develop. Extant literature suggests that entrepreneurial learning is learning from experiences (Cope, 2003; Politis, 2005) such as critical events (Cope, 2011), causing reflections about current ways of doing and thinking. It has been suggested that prospective entrepreneurs therefore must experience entrepreneurship to learn (Cope and Watts, 2000; Pittaway and Thorpe, 2012), and physical teaching settings should resemble environments in which entrepreneurs learn and operate. Entrepreneurial learning from these perspectives focuses on learning triggers, suggesting that it relates to the environment, the teacher, and events experienced. By elaborating on development in a learner, components that comprise entrepreneurial learning, and enabling learning from experiences, this dissertation highlights the self-regulating and goal-directed processes that enable affective, task-based, and cognitive learning during entrepreneurship.

6.2.1 Theoretical contributions

The aim of this dissertation was to contribute to the theoretical field of entrepreneurial learning. According to Whetten (1989), building new theories implies answering questions of *what* constructs, the components and variables that are part of the explanation, *how* these factors or components relate, *why* they relate, and conditions for this to happen in terms of *who, when*, and *where*. This dissertation explores components of entrepreneurial learning and how they relate in a didactic pyramid that enables experimental, affect-driven, and task-driven learning that in turn leads to development of entrepreneurial mindsets.

Contributions to entrepreneurship education and training literature

This dissertation adds to literature on entrepreneurial education and training in several ways. First, extant research suggests that the outcome of entrepreneurship training and education varies due to the context in which learning occurs (Dodd and Hynes, 2012; Dohse and Walter, 2010; Hytti, Fayolle and Kyrö, 2008; Leitch, Hazlett and Pittaway, 2012). Research suggests that students' experiences and perceptions are shaped by the context in which they reside, and this in turn influences outcomes of entrepreneurship training and education (Dodd and Hynes, 2012; Dohse, 2010; Heilbrunn and Almor, 2014; Hytti, Stenholm, Heinonen and Seikkula-Leino, 2010). Results from this dissertation corroborate such research, and indicate that prior to implementation of entrepreneurship education, prospective entrepreneurs hold perceptions of the value and importance of entrepreneurship. Those perceptions influence the results of entrepreneurship education. To enable learning during entrepreneurship, learners must understand their goals in relation to the context in which they are set. Findings also illustrate that differences in awareness and regulation of thoughts, emotions, and motivation contribute to this variation, even within a single school or classroom.

The literature suggests that doing something in a real-word context is a prerequisite for prospective entrepreneurs' development in terms of enhancing creativity, developing the ability to cope with uncertainty, and collaborate and develop an innovative approach to problem-solving (Cope and Watts, 2000; Gibb, 1987; Kirby, 2007; Pittaway and Cope, 2007b; Pittaway and Thorpe, 2012). Results from this dissertation contribute to this dialogue by showing that a physical setting does not determine the ability to develop entrepreneurially, but prospective entrepreneurs' ability to regulate thoughts and emotions in relation to the setting. A virtual world can be more real than its physical equivalent. What matters is the motivation for regulating thoughts and emotions to achieve learning goals. Paper 4 suggests that virtual realities enhance a learner's motivation and self-regulation, and therefore support development of entrepreneurial abilities and attitudes. A focus on characteristics builds on the idea that entrepreneurs are different from non-entrepreneurs, while ascribing entrepreneurs with strongly desirable (and perceived male) characteristics such as creativity, confidence, and the ability to make decisions (Berglund and Johansson, 2007; Dahlstedt and Hertzberg, 2012). In contrast, this dissertation suggests that a self-regulated mechanism is essential to development of an entrepreneurial mindset.

Research highlights the role of a teacher's entrepreneurial attitudes and mindset in students' entrepreneurial development (e.g, Jones and Iredale, 2010; Leffler, 2009; Leffler and Svedberg, 2003, 2005). Results from this dissertation suggest that the teacher is not a mediator or facilitator who develops prospective entrepreneurs' abilities to learn in the entrepreneurial process; a student's own regulation of thoughts and emotions spurs development and change.

Finally, the comparative approach used in the papers contribute new insights and deeper understanding of the processes and outcomes of entrepreneurship education (Jones & Iredale, 2014), especially for younger learners (Iredale, 1993; Moberg, 2014) who lack entrepreneurial experience.

Contributions to learning theory

Research characterizes entrepreneurial learning as the process of learning from experience, such as critical events, and especially the transformation of experiences to new knowledge (Politis, 2005). This dissertation complements and extends critical event literature by suggesting critical events as a source of learning, and as triggers of reflection, are prompted by awareness of relationships among emotions, motivations, and thoughts. Thus, learning from the experience of critical events is neither automatic nor immediate. For critical events to contribute to developing entrepreneurial cognitions, participants must recognize and define their thoughts, emotions, and behaviors, and relate them to conditions and judge them in relation to entrepreneurial determinants. This dissertation suggests that learning does not begin with the experience of a critical event, but the ability to recognize the event. Critical event recognition is a prerequisite to and initial step of enacting reflection, during which experiences are assessed and related to the learning process and future goals.

Researchers highlight the role of critical events because they trigger reflections about current ways of thinking and acting, leading to insights about how such thinking and acting must adjust to succeed the next time. This led research to emphasize the role of reflection in entrepreneurship training and education (Pepin, 2012). This dissertation contributes with a theoretical framework for analyzing and understanding outcomes of students' reflections during entrepreneurship education. Dewey's arguments on reflection explain how reflection aids the entrepreneurial development of students (Matlay and Pepin, 2012). This dissertation suggests that reflection must also be understood by considering Bourdieu's research on critical reflection. This highlights the need for entrepreneurship education to allow negotiation on the meaning of entrepreneurship education. Since entrepreneurial learning is about being aware of and regulating thoughts, emotions, and motivation to achieve goals,

learning outcomes from reflection on past and new experience must transcend existing ways of thinking and acting. Reflection in the context of entrepreneurial learning and development must challenge, change, and correct established perceptions.

Contributions to self-regulating learning theory

Self-regulated learning is characterized as a planned, stage-wise process. Entrepreneurship does not, however, come with curricula that detail optimum courses of action, but is about alert responses to what is not optimum (Kirzner, 1997). Entrepreneurship is about anticipation and construction of something new, and even things perceived impossible (Gaglio and Katz, 2001; Kirzner, 1999) by conventional ways of seeing the world (Bourdieu, 1990). Entrepreneurs are distinguishable by their ability to recognize when to reconfigure the current understanding of the environment (Gaglio and Katz, 2001; Kirzner, 1999), and regular breaking of current assumptions and habits to do things differently (Gaglio and Katz, 2001). This suggest that entrepreneurship in education is about stimulating students' abilities to question existing means-ends frameworks and break habits, instead of developing pre-set skills of a means-ends framework.

Self-regulating theory distinguishes personal goals set by a learner and goals set by others such as a teacher or curriculum, and the distinction is important in light of reflection. This dissertation departs from Dewey and Bourdieu (Bourdieu & Thompson, 1991), highlighting the transformative power of reflection during entrepreneurship education. When a goal state is set by others such as a teacher or community, it may transfer established ways of understanding an issue (Bourdieu and Stierna, 1997), in this case, the meaning of entrepreneurship in education. Reflection in a classroom setting may align students to a goal, but also limits the dynamism by which a learner finds a way to self-regulate to achieve self-set goals. In summary, for students to develop the capacity to make sense of their actions and goals in relation to the environment in which their actions occur (Breslin and Jones, 2014), it is important to allow them to become critical correctors of the established way of thinking and acting. Entrepreneurship education is about the ability to set goals and understand them in relation to the context in which they are set, and self-regulating to achieve them. Papers 2, 4, and 5 elaborate on how reflections can be taught and developed.

Contribution to literature on entrepreneurial education as a means of regional development

This dissertation contributes to literature on regional development and entrepreneurship education policy. This contribution also relates to trainers setting their own goals in relation to the context in which they operate. Research suggests that policy that encourages regional growth and development must be tailored to a local context (e.g., Asheim, Boschma and Cooke, 2011; Tödtling and Trippl, 2005). Findings from this dissertation indicate that decentralization and locally adjusted implementation may be counterproductive to policy directives suggesting entrepreneurship education is means of entrepreneurship and regional development. Encouragement at the local level (i.e., roots) that adjusts objectives to entrepreneurial education to fit local culture and business exacerbates the risk that efforts will result in poor opportunities for change.

Although literature on regional development and growth highlights the role of regional and local learning and knowledge creation (Asheim and Coenen, 2005; Boschma, 2005), present findings indicate a risk that new knowledge creation becomes dismantled by the lock-in effects that overly localized learning and knowledge spill over between existing and potential entrepreneurs give rise to. This is consistent with extant literature that emphasizes entrepreneurship as self-reinforcing (Walter and Dohse, 2012), during which entrepreneurial culture perpetuates over time and generations in some regions, and others not (Audretsch and Fritsch, 2002; Brekke, 2015). In regions characterized by high entrepreneurial activity, entrepreneurship education strengthens such activities by engaging students in entrepreneurial thinking and acting. In regions with low entrepreneurial activity, students become distanced from entrepreneurship through such spillover. Findings thus contribute to this dialogue by suggesting that care should be taken before entrepreneurship education is proposed as a tool for changing path-dependent, local development.

Research suggests that entrepreneurship education and the school–business collaboration it encompasses transforms culture and values, and therefore changes the context in which it is delivered (e.g., Pittaway and Cope, 2007a). In contrast, findings from the present study show that ties to local business activate several embedding mechanisms, which lead to embedding students in the current entrepreneurial culture. Although this study supports research that suggests that context matters to entrepreneurship education (Dodd and Hynes, 2012; Dohse and Walter, 2010; Hytti et al., 2008; Hytti et al., 2010; Leitch et al., 2012), it extends the literature by indicating that local entrepreneurial activity is as important as regional belonging to understanding contextual disparities.

culture and entrepreneurial activity, is difficult because it aligns entrepreneurial strivings with goals set by others.

6.2.2 Practical implications

For new theorizing to contribute greatly, it is important that its scope includes both theoretical and practical utility (Corley and Gioia, 2011). Findings suggest that entrepreneurship education should focus more strongly on creating a nexus between students and their own perceptions of opportunities for development (Sarasvathy and Venkataraman, 2011; Shane and Venkataraman, 2000), and the ability to question and rise above what others present as comfortable or familiar (Kirzner, 1999). When aware of one's goals in relation to the context in which they are set, reflection leads learners to review the future they anticipate for themselves, and their ability to construct it as they want it to be (Bourdieu, 1990; Rotter, 1966).

Learning from unexpected events and mistakes is important to developing entrepreneurial skills and cognitions of prospective entrepreneurs. Extant literature emphasizes giving prospective entrepreneurs experiences from which they can learn, and to which they can relate. This dissertation suggests that educational design and practice should focus on participants' ability to recognize events to which they should react, and from which they can learn. Thus, as a prerequisite for effective opportunity recognition, this dissertation suggests that critical event recognition should be addressed in teaching and training, including training learners to detect and be aware of their thoughts, emotions, and behaviors across situations. This helps them see patterns and combine thoughts, emotions, and behaviors when facing critical events, including setbacks and challenges. Such cognitive preparation is crucial to enacting entrepreneurial learning, and explains why some participants in entrepreneurial training do not develop or learn from setbacks, failures, and unexpected events while others do.

Reflection is important to developing entrepreneurial abilities and attitudes. Results from this study show that encouraging students' critical reflections is one way to allow learners to attain their full potential by reflecting not only on how they fit into the description of being entrepreneurial in school, but on the value and importance of being entrepreneurial in school in general, and what this means for them.

6.3 Future research

The result from this dissertation opens up several avenues for future research. First, this dissertation develops three testable propositions, suggesting that (1) entrepreneurial learning is comprised of the simultaneous regulation of cognitions, emotions, and motivations to achieve goals, (2) the context in which goals are set influences learning, and (3) self-regulation enables experience-, task-, and affect-driven learning, resulting in development of entrepreneurial mindsets and actions. Future research should operationalize the constructs and test the propositions empirically.

Second, since research on entrepreneurial training and education typically focuses on teachers, trainers, and programs as the unit of analysis, future research should explore the influence and perceptions of entrepreneurial learning of the learner. Similarly, much research on entrepreneurial learning focuses on the entrepreneur as the unit of analysis, ignoring the cultural embeddedness of learning. One opportunity for future research on entrepreneurial learning is the study of learning ecosystems at regional or local levels, and how learning of prospective entrepreneurs ties to the learning of experienced entrepreneurs.

Third, given the uncertain nature of entrepreneurship, strong emotions are inherent in entrepreneurship (Cardon et al., 2012; McGrath, 1999; Ucbasaran et al., 2013). Extant research suggests that emotional reactions that follow failures influence subsequent entrepreneurial engagements (Byrne and Shepherd, 2015; Shepherd, 2003), and therefore entrepreneurial training should teach coping with negative emotions (Shepherd, 2004). Research suggests that novice entrepreneurs are optimistic regarding expectations of the future, serving as self-serving bias (Parker, 2009) and a passion to persist (Cardon, Wincent, Singh and Drnovsek, 2009). Future research should explore how types of emotions influence subsequent behaviors, and how and why such emotions change over time. An example is a study that details the types of emotions used, how they form and are triggered, and the influence they have on cognition and motivation.

Fourth, research suggests that the ability to sense variations in the environment and choose among decision frameworks to select alternatives for interpreting, planning, and implementing a variety of personal, social, and organizational goals is an entrepreneurial resource (Baron and Ward, 2004; Haynie et al., 2012). This dissertation suggests that self-regulation of emotions, cognitions, and motivations enables learning during entrepreneurship, and although this means that the learner is prepared to learn from a variety of experiences, more research is needed on mechanisms that enable

a learner's ability to adapt to changing circumstances. Future research should explore how cognitive adaptability can be learned in a variety of contexts, both by entrepreneurs and prospective entrepreneurs.

Fifth, self-regulation means that learners regulate strong emotions, thoughts, and motivations, and use them to move on to new experiences. Future research should explore how learners' cognitions and emotions change over time. One opportunity is to study how strong emotions that are triggered by critical events endure, whereas emotions from other events are regulated and forgotten, and how this influences the entrepreneurial mindset and characteristics.

Sixth, the learner and content of learning are influenced by the context in which learning occurs (Dodd and Hynes, 2012; Dohse, 2010). Future research should examine how entrepreneurial learning changes not only the objective environment, but also perceptions of it (e.g., perceived as an opportunity or threat, or offers opportunities or limitations for new entrepreneurial endeavors), and how that relates to goal-setting and goal-striving of both the learner and environment.

6.4 Conclusion

This dissertation explores components and the dynamic process of entrepreneurial learning. Regarding the first research question, about the core components of entrepreneurial learning, this dissertation suggests awareness of cognition, affect, and motivation. Addressing the second, this dissertation shows that entrepreneurial learning is the simultaneous and active regulation of cognitions, emotions, and motivations to achieve goals. For the third, this dissertation elaborates on both individual and potential entrepreneurial development of societies. Regarding individual development, this dissertation shows that simultaneous and active regulation of cognitions, emotions, and motivations develops entrepreneurial mindsets and actions.

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Part 2

PART 2

Papers

Paper #1

Lindh, I. & Thorgren, S. (2015). *Learning and Teaching Entrepreneurial Mindsets: Bridging Research in Business and Education.* NOVA Publishers.

Paper #2

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Paper #3

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Paper #4

Lindh, I. Combining physical and virtual realities to enhance students' entrepreneurial development. Paper under review.

Paper #5

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