



The Process of Entrepreneurial Learning: A Conceptual Framework

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The present article seeks to advance the theoretical knowledge of entrepreneurial learning by reviewing and synthesizing available research into a conceptual framework that explains the process of entrepreneurial learning as an experiential process. The framework identifies three main components in the process of entrepreneurial learning: entrepreneurs' career experience, the transformation process, and entrepreneurial knowledge in terms of effectiveness in recognizing and acting on entrepreneurial opportunities and coping with the liabilities of newness. Based on the arguments in the article, five major propositions were developed to refine our understanding of entrepreneurial learning. Finally, theoretical and practical implications were discussed.

Extant research suggests that entrepreneurs who have been involved in starting up a new venture also seem to be more successful and effective in starting up and managing their second and third organizations (see for example Lamont, 1972; Ronstadt, 1988; Starr & Bygrave, 1992; Vesper, 1980; Wright, Westhead, & Sohl, 1998). If this is true, what expertise and special knowledge do these entrepreneurs gain from doing their first start-up, and how do entrepreneurs develop their personal experiences into such expertise and special knowledge? Considering that entrepreneurship is a field of research that has not been particularly well studied in relation to the process of learning (Agnedal, 1999; Rae & Carswell, 2001; Ravasi, Turati, Marchisio, & Ruta, 2004), it is not surprising that these and similar questions have largely remained unanswered within this field.

Literature and research suggest that much of the learning that takes place within an entrepreneurial context is experiential in nature (e.g., Collins & Moore, 1970; Deakins & Freel, 1998; Minniti & Bygrave, 2001; Reuber & Fischer, 1993; Sarasvathy, 2001; Sullivan, 2000). This implies that the complex process by which entrepreneurs learn from past experiences is of great importance to consider if we are to increase our understanding of entrepreneurial learning. Previous research has frequently pointed out the role of experience, and in particular prior start-up experience, as a proxy for entrepreneurial learning (e.g., Box, White, & Barr, 1993; Lamont, 1972; Ronstadt, 1988; Sapienza & Grimm, 1997). Despite this recognition, the current knowledge of how entrepreneurs

learn from past experiences is rather fragmented (Reuber & Fischer, 1999; Starr, Bygrave, & Tercanli, 1993).

A reason for this is probably the way in which entrepreneurial learning has been approached. Studying entrepreneurial learning has been primarily equal to comparing the relative difference between entrepreneurs' "total stock" of experiences at a given point of time, and researchers have then related this stock of experiences to variations in new venture performance (e.g., Bailey, 1986; Box, White, & Barr, 1993; Lamont, 1972; Sapienza & Grimm, 1997). A major critique that can be directed toward these previous approaches to understand the role of experience in entrepreneurial learning are the findings from literature and research on new venture growth, which have showed that it is very hard to sort out the effects of single endogenous and exogenous factors that ultimately may influence firm performance (Keeley & Roure, 1990; Sandberg & Hofer, 1987; Storey, 1994; Wiklund, 1998). Many things could hence be argued to have an impact on the performance of new ventures, such as firm location, the choice of sector or market where the firm operates, market positioning, etc., which make the assumed direct relationship between entrepreneurs' experiences and new venture performance very hard to establish. It could also be argued that the knowledge derived from past experiences first and foremost has an influence on the strategic choices made by entrepreneurs in their subsequent ventures, which *then* influence firm performance. This means that it may be more plausible to study the influence of entrepreneurs' experiences on the development of relevant knowledge that indirectly may have an impact on subsequent new venture performance, rather than its direct influence on firm-level performance.

Another critique that can be directed toward previous approaches to understand the role of learning in entrepreneurship research is that it takes a rather static perspective on the process of entrepreneurial learning, where "process" merely refers to the logic of explaining the causal relationship between entrepreneurs' previous experiences and the performance of the subsequent venture. Little attention is hence devoted to how entrepreneurs, through experiences, develop entrepreneurial knowledge that enables them to recognize and act on entrepreneurial opportunities and to organize and manage new ventures. What still largely remains unanswered in the literature is consequently the question of *how* entrepreneurs develop entrepreneurial knowledge that indirectly may have a positive impact on subsequent venture performance.

Based on this background, the aim of this article is to review and synthesize available research into a conceptual framework that would explain the process of entrepreneurial learning as an experiential process. By achieving this aim, the article will contribute to existing literature on entrepreneurial learning in several ways. First, the study emphasizes the role of experience in developing entrepreneurial knowledge by integrating theories of experiential learning (e.g., Kolb, 1984; March, 1991) into the entrepreneurship field. The study consequently highlights entrepreneurial learning as an experiential process where enterprising individuals continuously develop their entrepreneurial knowledge throughout their professional lives. Second, the study draws a distinction between the experience of an entrepreneur and the knowledge thereby acquired (Reuber & Fischer, 1994). Despite the extensive efforts in investigating the potential learning effects of entrepreneurs' past experiences, there has been very little effort to distinguish between these two interrelated, yet distinct, concepts. Third, the study moves away from previous static approaches and develops a more dynamic perspective on the process of entrepreneurial learning (Minniti & Bygrave, 2001; Reuber & Fischer, 1999), as it does not solely focus on the relationship between entrepreneurs' experiences and the development of entrepreneurial knowledge, but also to the intermediate process where their experiences are transformed into such

knowledge. Hence, the study puts its focus on the transformation process of entrepreneurs' experiences (Minniti & Bygrave, 2001; Reuber & Fischer, 1999), rather than only the direct link between a particular experience and the knowledge gained from this experience.

The rest of the article will proceed as follows. First, a review of literature and research on entrepreneurial learning is conducted in which a number of central concepts and ideas derived from experiential learning theory are discussed and elaborated on. Based on this review, the article presents a conceptual framework and develops five major propositions to refine our understanding of how entrepreneurs learn from experiences and pave the way for future empirical research. The article ends with conclusions and implications for practice and future research.

Entrepreneurial Learning

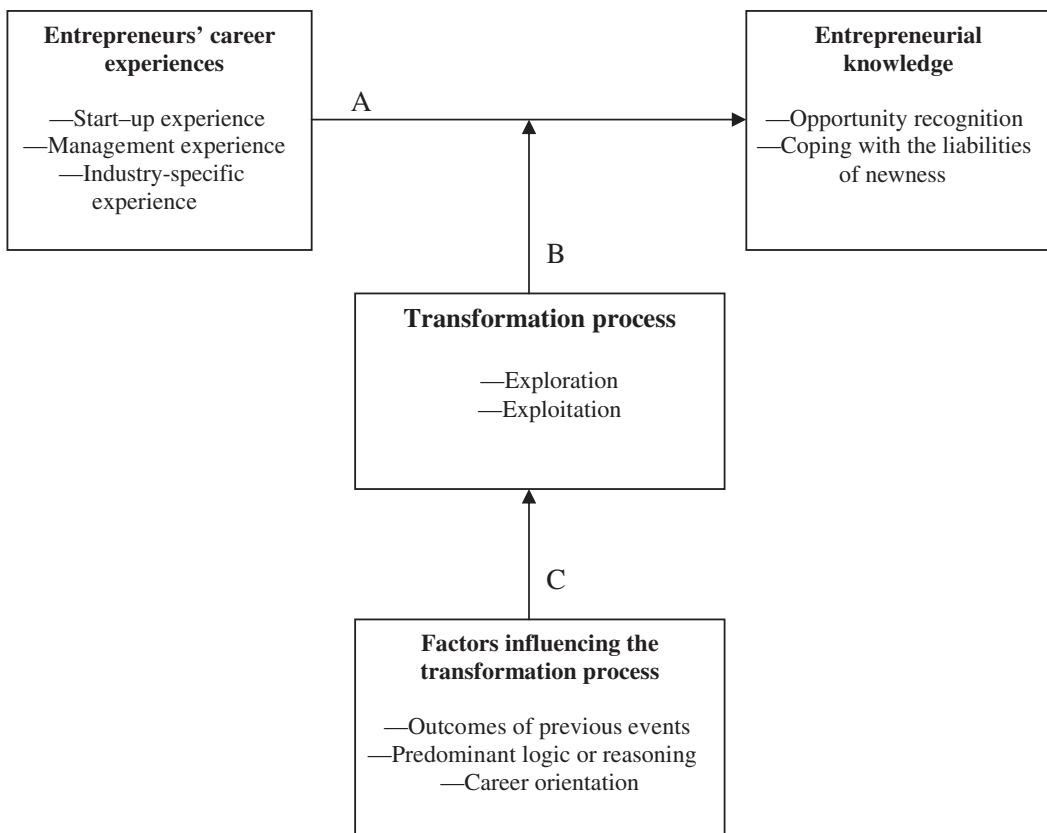
Entrepreneurial learning is often described as a continuous process that facilitates the development of necessary knowledge for being effective in starting up and managing new ventures. However, although there have been extensive efforts in investigating the potential learning effects of entrepreneurs' experiences, there has been very little effort to distinguish between "entrepreneurial experience" and "entrepreneurial knowledge" (or what Reuber, Dyke, and Fischer [1990] refer to as "experientially acquired knowledge"). A starting point for studying the process of entrepreneurial learning could hence be to draw a distinction between the experience of an entrepreneur and the knowledge thereby acquired (Reuber & Fischer, 1994). One way to distinguish between these two concepts is to consider entrepreneurs' experiences as a direct observation of, or participation in, events associated with new venture creation, while the practical wisdom resulting from what an entrepreneur has encountered represents the knowledge derived from this particular experience (Reuber et al., 1990). This line of reasoning can be related to Kolb (1984), who emphasizes two basic dimensions of experiential learning—acquisition (grasping) and transformation. The former can be argued to correspond to "experience" (hereafter referred to as entrepreneurs' experiences), while the latter is considered equivalent to "experientially acquired knowledge" (hereafter referred to as entrepreneurial knowledge).

Having distinguished between the experience of an entrepreneur and the knowledge thereby acquired, we can start to investigate the experiential process where the personal experience of the entrepreneur is continuously transformed into knowledge. In order to organize the various arguments and reflections on the process of entrepreneurial learning that has been found in the literature, a conceptual framework was developed. The term *conceptual framework* is used in the study as the goal at this initial stage is mainly to advance our understanding of entrepreneurial learning as an experiential process by exploring antecedents and outcomes of the transformation process of entrepreneurs' experiences, rather than to fully specify a model or test strong causal propositions. The conceptual framework is illustrated in Figure 1.

The framework illustrates that we, in addition to investigating the direct link between entrepreneurs' career experiences and the development of entrepreneurial knowledge (A), also need a better understanding of how the entrepreneurs' predominant mode of transforming an experience into knowledge influences the specific type of knowledge developed (B), and, additionally, also the factors that influence the entrepreneurs' predominant mode of transforming an experience into knowledge (C). The rest of this article will continue to develop these arguments.

Figure 1

A conceptual framework of entrepreneurial learning as an experiential process



Entrepreneurial Knowledge

Any discussion of learning is confronted with the somewhat difficult task of trying to describe or define what “learning” involves. One way to accomplish this task is to elaborate on the key outcomes related to the process of learning that have been identified in recent research represented in the particular field of study. When learning is applied to the concept of entrepreneurship, it has often been concerned with learning how to recognize and act on opportunities (Corbett, 2002; Ronstadt, 1988; Shane & Venkataraman, 2000), and learning how to overcome traditional obstacles when organizing and managing new ventures, i.e., handling liabilities of newness (Aldrich, 1999; Shepherd, Douglas, & Shanley, 2000; Starr & Bygrave, 1992; Stinchcombe, 1965). In reality, most entrepreneurs simultaneously engage in both activities, as they often are involved in several concurrent projects that are in different stages of development (Johannsson, 2000; Shane, 2003). However, organizing a new venture centers on an entrepreneurial opportunity that must have been recognized and acted upon at an earlier time. Thus, from a theoretical point of view, handling liabilities of newness cannot take place without prior opportunity recognition. This point of departure implies in particular two distinct learning outcomes

related to entrepreneurial learning: (1) increased effectiveness in opportunity recognition, and (2) increased effectiveness in coping with the liabilities of newness.

Opportunity Recognition. The ability to discover and develop business opportunities is often considered to be among the most important abilities of a successful entrepreneur, and this has consequently also been a key issue to investigate and explain in literature and research on entrepreneurship (Ardichvili, Cardozo, & Ray, 2003; Ronstadt, 1988; Shane & Venkataraman, 2000). Several scholars have pointed out that experienced entrepreneurs have acquired valuable knowledge about relevant contacts, reliable suppliers, viable markets, product availability, and competitive resources and response, which enhance their ability to seize and spot entrepreneurial opportunities (Hudson & McArthur, 1994; Ronstadt, 1988; Shepherd et al., 2000; Starr & Bygrave, 1992). Experienced entrepreneurs may also be more likely than novice entrepreneurs to pursue ventures as a means of gaining access to a wider range of “shadow options,” i.e., opportunities that have not been recognized (McGrath, 1999). For example, McGrath and MacMillan (2000) suggest that entrepreneurs with prior start-up experience have developed an “entrepreneurial mind set” that drives them to seek and pursue entrepreneurial opportunities with enormous discipline, and hence, can be expected to pursue only the very best opportunities. This argument also corresponds to Carroll and Mosakowski (1987) who assert that prior start-up experience increases the probability of exploitation of entrepreneurial opportunities since learning reduces the costs related to this endeavor. The lessons learned from a prior experience might consequently enhance entrepreneurs’ ability to effectively recognize and act on entrepreneurial opportunities (Ronstadt, 1988; Ucbasaran, Westhead, & Wright, 2003).

However, considering that an increased effectiveness in the opportunity recognition process as an outcome of entrepreneurial learning raises the question of why some individuals have the ability to discover entrepreneurial opportunities, and others do not. Previous research has identified at least two factors that influence the probability that particular individuals will enhance their likelihood to discover entrepreneurial opportunities: (1) the possession of the prior information necessary to identify an opportunity, and (2) the cognitive properties necessary to value it (Ardichvili et al., 2003; Shane & Venkataraman, 2000). The possession of the prior information necessary to identify an opportunity has to do with an individual’s total stock of information that influences his or her ability to recognize particular opportunities. The cognitive properties necessary to value it refer to an individual’s ability to identify new means–ends relationships in response to a particular change (Shane & Venkataraman, 2000).

Even if both factors describe quite different things, they are nevertheless necessary to be able to recognize and act on entrepreneurial opportunities. This means that even if an individual possesses the prior information necessary to identify or create an opportunity, he or she could fail in actually doing so because of his or her inability to see potential new means–ends relationships. Hence, the cognitive properties of an individual, i.e., the ability to combine existing concepts and information into new ideas, can be argued to play a central role in the process of entrepreneurial learning (Busenitz & Barney, 1997; Kaish & Gilad, 1991). An increased effectiveness in the opportunity recognition consequently means that the entrepreneur has picked up more relevant information necessary to identify entrepreneurial opportunities, as well as having developed his or her cognitive properties necessary to value it (Shane & Venkataraman, 2000). Hence, prior experience gives rise to further creativity, permitting the sorts of associations and linkages that may have never been considered before. This argument also fits theories that argue that the level of prior experience is a key factor for the ability to evaluate and utilize

outside knowledge and exploit new market opportunities (Cohen & Levinthal, 1990; Gatewood, Shaver, & Gartner, 1995; Shane, 2003; Zahra & George, 2002). Prior experience consequently confers an ability to recognize the value of new information, to learn, and to apply it to new commercial ends (Cohen & Levinthal, 1990). Experienced entrepreneurs are in this respect more likely to search information within a more specific domain of business ideas based on their past experiences in terms of routines and information sources that have worked well in the past (Cyert & March, 1963; Fiet, Piskounov, & Gustafsson, 2000; Shane, 2003), while novice entrepreneurs with no prior experience may have fewer benchmarks to access whether the information they have gathered is appropriate to identify an entrepreneurial opportunity (Cooper, Folta, & Woo, 1995). The amount of prior experience seems in this respect to be highly associated with an entrepreneur's effectiveness in recognizing and acting on entrepreneurial opportunities.

Coping with the Liabilities of Newness. Another learning outcome that is assumed to be an important ability of a successful entrepreneur is the ability to cope with liabilities of newness (Aldrich, 1999; Shepherd et al., 2000; Starr & Bygrave, 1992; Stinchcombe, 1965). It is a well-known fact that the rate of mortality among newly founded firms is very high (Laitinen, 1992; Timmons, 1999). The main reasons for this rather sad statistics have been found to be inadequate funding and inefficient marketing (Storey, 1994; Sullivan, Warren, & Westbrook, 1999). Potential customers have, for example, little basis for trusting newcomers without a sufficient track record because of their short operating histories, and buyers can hence be hesitant to place orders. The shortfall in cash flow can moreover reduce the ability of the new firm to adequately respond to outside problems and threats. Entrepreneurs must consequently earn the recognition that they are legitimate businesspersons by reliably providing goods and services in a timely manner. Financial problems as well as marketing problems seem consequently to be common reasons for the high failure rates among new ventures, and the average first-time entrepreneur seems to be ill equipped to handle the traditional obstacles and uncertainties related to setting up a new venture.

Previous experience could however lead to a greater likelihood of a customized set of benefits, such as relevant business skills, well-developed networks, and a business reputation, that can be leveraged into subsequent ventures (Hudson & McArthur, 1994; Shane & Khurana, 2003; Shepherd et al., 2000; Starr & Bygrave, 1992; Wright, Robbie, & Ennew, 1997). The ability to better cope with liabilities of newness could in this respect involve several aspects related to the various ways entrepreneurs reduce the traditional obstacles and uncertainties related to setting up a new venture (Aldrich & Auster, 1986; Shepherd et al., 2000; Starr & Bygrave, 1992), such as finding financial start-up capital, legitimacy building, adaptation to changes, having access to social and business networks, etc. There can also be certain knowledge-based barriers to entry, meaning that a certain level of production technology or managerial capability is a prerequisite to meet the contextual constraints that new ventures face and the difficulties that managers have in overcoming them (Cohen & Levinthal, 1990; Shepherd et al., 2000). A diverse background may, in this respect, stimulate creativity by associating to more linkages, which in turn provide a more robust basis for learning and development in new uncertain situations (Cohen & Levinthal, 1990). Hence, it can be argued that previous experience provides entrepreneurs the opportunity to increase their ability to cope with the liabilities of newness, and learn new knowledge that can be readily redeployed in other ventures, and thereby provide them with the ability to enter into new markets, products, or technologies with greater success (Kolvereid & Bullvåg, 1993; MacMillan, 1986; McGrath, 1999; Starr et al., 1993). An increased effectiveness to cope with the liabilities of newness

seems, in this respect, to be manifested through the “wealth” that entrepreneurs have created in terms of financial facilities, the “power” they possess by exploiting their social networks, and the “legitimacy” they have acquired by developing a business reputation, which can help the entrepreneurs to secure financial resources and develop a market for their products or services (Starr & Bygrave, 1992).

Entrepreneurs’ Career Experiences and Entrepreneurial Knowledge

If prior experience can explain why certain entrepreneurs are more successful than others (e.g., Kolvereid & Bullvåg, 1993; Lamont, 1972; Reuber & Fischer, 1993; Wright, Robbie, & Ennew, 1997), which type of career experience can then be considered to have an impact on entrepreneurs’ learning in terms of developing their effectiveness in opportunity recognition and in coping with the liabilities of newness? A widely used measure in studies of entrepreneurial learning is prior start-up experience (e.g., Box et al., 1993; Kolvereid & Bullvåg, 1993; Reynolds, Hay, Bygrave, Camp, & Autio, 2000; Sapienza & Grimm, 1997; Westhead & Wright, 1998). Previous research indicates that prior start-up experience provides tacit knowledge that facilitates decision-making about entrepreneurial opportunities under uncertainty and time pressure (Johannesson, Landström, & Rosenberg, 1998; Sarasvathy, 2001). As a result, individuals with more start-up experience should see a given opportunity as more desirable than other individuals see it, and therefore be more likely to exploit it (Shane, 2003). Several empirical studies provide support for this “learning by doing” argument. For example, Gimeno, Folta, Cooper, and Woo (1997) showed that prior start-up experience enhances the economic performance of new ventures, suggesting that new ventures whose founders had more previous start-up experiences earn more income from their businesses. A previous start-up experience is, in addition, often considered to provide knowledge that helps an entrepreneur to overcome the liabilities of newness that new ventures face (Reuber & Fischer, 1993; Shane & Khurana, 2003; Starr & Bygrave, 1992). Moreover, Cooper, Woo, and Dunkelberg (1989) showed that entrepreneurs’ prior start-up experience had a significant and positive relationship with firm performance (see also Dyke, Fischer, & Reuber, 1992; Stuart & Abetti, 1990 for similar results). Several authors also point out that even if some of the information and knowledge can be learned through education, much of the necessary information about exploiting opportunities and in coping with the liabilities of newness can only be learned by doing (Cope & Watts, 2000; Rae, 2000; Shane, 2003). For example, developing routines to form organizations may only be learned by creating organizations (Bruderl, Preisendorfer, & Ziegler, 1992; Shepherd, Douglas, & Shanley, 2000), and gathering the right information and making effective decisions about opportunities may be something that can only be understood by undertaking those activities (Duchesneau & Gartner, 1990; Ronstadt, 1988).

Another type of experience that has been highlighted in the literature on entrepreneurial learning is the entrepreneurs’ amount of management experience. For example, Bruderl and Preisendorfer (1998) showed that entrepreneurs’ years of work experience increased their ventures’ three-year survival rates, and thereby reduced the likelihood of new venture failure. Similarly, Taylor (1999) examined the duration of self-employment of individuals responding to the British Household Panel Survey, and found that having prior paid employment reduced the rate of exit from self-employment. Also, Duchesneau and Gartner (1990) indicated a positive relationship between founders’ management experience and new venture survival, pointing out that founders of failed ventures had narrower management experience than the founders of successful ventures. Moreover,

several studies suggest that prior management experience increases an individual's intention to start a new venture, thereby facilitating the opportunity recognition process (e.g., Delmar & Davidsson, 2000; Honig & Davidsson, 2000; Vesalainen & Pihkala, 1999). Hence, general management experience seems to provide individuals with information about many of the basic aspects of business that are relevant to recognize and act on entrepreneurial opportunities, such as finance, sales, technology, logistics, marketing, and organization (Romanelli & Schoonhoven, 2001; Shepherd et al., 2000). Moreover, having prior management experience provides the entrepreneurs training in many of the skills needed for coping with the liabilities of newness, such as selling, negotiating, leading, planning, decision making, problem solving, organizing, and communicating (Lorrain & Dussault, 1988; Shane, 2003).

Considering that entrepreneurs often face uncertainty about the value of the goods and services that they plan to produce, it seems fair to assume that also industry-specific experience can have a strong influence on their development of entrepreneurial knowledge (Shane, 2003; Shepherd et al., 2000). This implies that individuals with prior experience as a customer or supplier in an industry often have a better understanding of how to meet demand conditions in that marketplace, as industry experience provides information that outsiders cannot gather (Johnson, 1986). For example, Aldrich (1999) showed that founders tend to start businesses in industries in which they were previously employed, because their employment experience allows them to take advantage of information of the exploitation of opportunities gathered from their previous employment. Similarly, Cooper, Dunkelberg, and Woo's (1988) study shows that the products, services, customers, and suppliers of the surviving ventures were more closely related to the products, services, customers, and suppliers of the entrepreneurs' previous employer, than were those of the failing ventures (see also Bates & Servon, 2000 for similar results). Consequently, it seems fair to assume that the number of previous start-ups alone cannot be a satisfactory measure of entrepreneurs' prior experiences. Rather, it can be argued that entrepreneurs' experiences can include various entrepreneurial events, and even if these events usually are connected to the start-up of a new independent business can some of these events be related to experiences of business venturing in existing organizations as well (e.g., Drucker, 1985; Pinchot, 1985), and as such also provide managers with inputs to develop entrepreneurial knowledge.

Taken together, the events that are antecedent to entrepreneurial knowledge are not always readily apparent in the case of a new venture due to the presence of ambiguity and continuous changes that are usually evident in an entrepreneurial context (Ravasi et al., 2004; Sarasvathy, 2001). This means that prior experience from similar situations often serves as the basis for expertise and knowledge in entrepreneurial contexts (Johannisson et al., 1998; Reuber et al., 1990; Shook, Priem, & McGee, 2003). The literature seems to suggest at least three types of career experiences that are associated with entrepreneurial learning: start-up experience, management experience, and industry-specific experience. Each of these types of experiences does seem likely to expose individuals to problems, which they might encounter in running a new venture, and hence facilitate acquisition of knowledge that would help solve similar problems in the future. The following proposition summarizes our predictions regarding the development of entrepreneurial knowledge derived from an entrepreneur's career experience.

Proposition 1: The entrepreneur's career experience, in terms of start-up, management, and industry-specific experience, is positively related to the development of entrepreneurial knowledge.

Proposition 1a: The more career experience, the more effective is the entrepreneur in recognizing and acting on entrepreneurial opportunities.

Proposition 1b: The more career experience, the more effective is the entrepreneur in coping with the liabilities of newness.

The Transformation Process of Entrepreneurial Learning

Entrepreneurial learning has been presented as an experiential process where the personal experience of an entrepreneur is transformed into knowledge, which in turn can be used to guide the choice of new experiences. When investigating entrepreneurial learning, it is however necessary to acknowledge that entrepreneurs' career experiences do not directly lead to that entrepreneurial knowledge is acquired. Instead, the gaining of new experiences and the development of new knowledge can rather be described as a process where experiences are *transformed* into experientially acquired knowledge (Kolb, 1984). Hence, the simple perception of prior experience is not sufficient for entrepreneurial learning to happen, but require that something must be done with it. Similarly, transformation alone cannot represent learning, for there must be something to be transformed, some state or experience that is being acted upon. What still remains unanswered is consequently the fundamental question of *how* entrepreneurs transform their career experiences into entrepreneurial knowledge.

To develop our theoretical knowledge of the transformation of entrepreneurs' career experience into entrepreneurial knowledge, it seems fruitful to integrate concepts and ideas derived from experiential learning theory into the field of entrepreneurship (see for example Bailey, 1986; Cope & Watts, 2000; Deakins & Freel, 1998; Johannsson et al., 1998; Minniti & Bygrave, 2001; Rae, 2000). The article initially suggested that both dimensions of experiential learning (i.e., grasping and transformation dimensions) are essential to include when understanding the process of entrepreneurial learning. Experiential learning can hence be described as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 41). The central idea of experiential learning is that learning (or knowing) requires a grasp or figurative representation of experience, and then some transformation of that representation (Kolb, 1984). This point of view regards learning as a transformation process of experiences, being continuously created and recreated, and not as an independent entity to be acquired or transmitted (Holmqvist, 2000). Relating this standpoint to an entrepreneurial setting, it can be argued that entrepreneurs are often confronted with immediate and concrete experiences (Gartner, 1989; Johannsson, 1992b), implying that they have a great variety of experiences that provide them opportunities to develop entrepreneurial learning. Entrepreneurial knowledge can hence be regarded as the result of the combination of both grasping an experience as well as transforming this experience.

Kolb's (1984) model of experiential learning proposes four learning phases that individuals need to carry out in order to develop effective learning (i.e., complete the learning cycle). Based on Kolb's ideas, entrepreneurial learning can be regarded as an experiential process in which entrepreneurs develop knowledge through four distinctive learning abilities: experiencing, reflecting, thinking, and acting (Bailey, 1986; Johannsson et al., 1998). Although Kolb's experiential learning theory continues to be one of the most influential theories of individual learning, it has also been the target of much scrutiny. Such criticisms generally argue that Kolb's theory of experiential learning de-contextualizes the learning process and provides only a limited account of the

many factors that influence learning (see for example Kayes, 2002; Reynolds, 1998; Vince, 1998 for more extensive reviews). When studying the process of entrepreneurial learning, it is important to recognize that Kolb's cyclical model is not fully adequate to understand the complex uncertainties that entrepreneurs have to deal with. For instance, Johannsson et al. (1998) found that entrepreneurs have a rich source of concrete experiences, which are formed into an intuitive capacity, ready to use as bases for analogies when challenged by surprising "critical" events (see also Baron, 1998; Busenitz & Barney, 1997 for similar arguments). This more or less conscious use of analogies may be reinforced by the fact that entrepreneurs seldom have time for explicit conceptualization, or for theorizing beyond individual choices. Consequently, it can be argued that the process of entrepreneurial learning does not necessarily follow a predetermined sequence of steps according to Kolb's (1984) four-stage learning cycle, but rather can be conceived as a complex process where entrepreneurs transform experience into knowledge in disparate ways. Here, alternative modes of transforming entrepreneurs' experiences into knowledge become an essential part of the process of entrepreneurial learning.

Modes of Transforming an Experience into Knowledge

The transformation process of experience is suggested to have two distinctive courses depending on how entrepreneurs transform their experiences into knowledge (Minniti & Bygrave, 2001). The role of experience may, in this respect, be twofold implying that entrepreneurs can rely on one of two possible strategies when making decisions: exploitation or exploration. In the first case, entrepreneurs may choose actions that replicate or are closely related to the ones they have already taken, thereby exploiting their preexisting knowledge. In the second case, entrepreneurs can choose new actions that are distinct from the ones that they have already taken.

This line of reasoning is in accordance with March's (1991) ideas on the trade-offs between exploitation and exploration in organizational learning. March argues that organizations or individuals are confronted with a set of experiences that forces them to make choices. These choices are usually reflected in two interrelated, yet disparate, ways to transform an experience into knowledge, namely exploitation and exploration. Exploitation concerns the exploitation of what is already known, implying that individuals learn from experience by exploiting old certainties. This includes such things as refinement, routine, and implementation of knowledge. Exploitation is thus about creating reliability in experience, which means that stable behavior becomes the dominant state of the learner (Holmqvist, 2000). This way of transforming an experience into knowledge is in contrast to exploration, which is about creating variety in an experience resulting in that change in behavior becomes the dominant state. Exploration means that individuals learn from experiences by exploring new possibilities including issues such as variation, experimentation, discovery, and innovation. This line of reasoning also fits Cohen and Levinthal's (1990) arguments that there is a trade-off between standardization and diversity of knowledge. Getting too specialized will consequently lead to increased expertise in one area at the cost of reduced experimentation and alternative ideas, and vice versa (see also Cyert & March, 1963; Ghemawat & Costa, 1993; Levinthal & March, 1993 for similar arguments).

It should be explicitly noted that none of these two different courses of transforming experience into knowledge is automatically better than the other. March (1991) argues that both ways of transforming an experience into knowledge are essential to sustain learning, but they compete for scarce resources. For instance, individuals who are engaged in exploration to the exclusion of exploitation are likely to find that they suffer

the cost of experimentation without gaining many of its benefits. This focus on exploration may result in too many underdeveloped new ideas and too little distinctive competence. Conversely, individuals engaging in exploitation to the exclusion of exploration are likely to find themselves trapped in suboptimal stable equilibrium. The returns to exploitation are hence generally more certain, closer in time, and closer in space than are the returns to exploration (March, 1991). In contrast, exploration is associated with substantial success as well as failure implying a larger performance variation. Based on this argument, it can be concluded that maintaining an appropriate balance between exploration and exploitation is a primary concern for survival and prosperity (March, 1991), as the exploitation of commercially successful new ideas provides the resources to support new exploration (Mintzberg & Waters, 1982). However, the optimal mix of exploration and exploitation is complex and hard to specify, because it is easy to become trapped into dynamics of accelerating exploration or exploitation (Levinthal & March, 1993).

Exploration, Exploitation, and Entrepreneurial Knowledge

In the discussion on the development of entrepreneurial knowledge, it was argued, all else being equal, that prior experience is positively related both to an entrepreneur's effectiveness in recognizing and acting on opportunities, and in coping with the liabilities of newness. However, although this can be regarded as likely when comparing individuals with significantly different amounts of experience, it can be argued that two entrepreneurs with about the same amount of experience may have developed different kinds of entrepreneurial knowledge depending on their predominant mode of transformation. Research on the opportunity recognition process has, for example, suggested that opportunity-seeking entrepreneurs who are continuously involved in new venture creation, so-called habitual entrepreneurs, often strive for variation and new challenges (e.g., Hall, 1995; Westhead & Wright, 1998). Moreover, they often start new ventures with an aim to learn something new and, as such, consider their habitual entrepreneurship as an exciting and challenging career option (Katz, 1994; MacMillan, 1986). This line of reasoning suggests that entrepreneurs that are highly explorative and alert, taking a broad intuitive perspective that incorporates many different inputs at once, also tend to become more effective in recognizing and acting on business opportunities (Corbett, 2002; Hills, Lumpkin, & Singh, 1997; Zietsma, 1999). On the other hand, it is often pointed out that effective handling of the liabilities of newness requires the use of analogous reasoning and routinized behavior in order to handle conflicts with new roles, delegate responsibility, and develop stable links with important stakeholders (Shepherd et al., 2000; Starr & Bygrave, 1992; Stinchcombe, 1965). This suggests that entrepreneurs that put their primary focus on the exploitation of preexisting knowledge, including such things as refinement, habit, and implementation, seem to become more effective in coping with the liabilities of newness and overcoming the traditional obstacles facing new ventures. Hence, the predominant mode of transformation can have consequences for the specific type of entrepreneurial knowledge that is developed.

Based on the above discussion, it seems fair to suggest that the entrepreneurs' predominant mode of transformation can moderate the relationship between their career experiences and the development of entrepreneurial knowledge. Entrepreneurs that primarily rely on exploration as the predominant mode of transformation seem to favor the development of their effectiveness in opportunity recognition, while entrepreneurs that primarily rely on exploitation as the predominant mode of transformation seem to favor for developing their effectiveness in coping with the liabilities of newness.

This leads to the following proposition:

Proposition 2: An entrepreneur's predominant mode of transformation moderates the relationship between his or her career experience and entrepreneurial knowledge.

Proposition 2a: The more overall reliance on exploration as the predominant mode of transformation, the more effective is the entrepreneur in recognizing and acting on entrepreneurial opportunities.

Proposition 2b: The more overall reliance on exploitation as the predominant mode of transformation, the more effective is the entrepreneur in coping with the liabilities of newness.

Factors Influencing the Transformation Process

Based on the discussion above, it seems fair to argue that the mode of transforming an experience into entrepreneurial knowledge is made either through the exploitation of preexisting knowledge where entrepreneurs focus their attention and activity on what has been working well in the past, or through the exploration of new possibilities where experimentation serves as an important learning technique (Minniti & Bygrave, 2001; Sitkin, 1992). How, then, can we predict entrepreneurs' predominant mode of transforming an experience into entrepreneurial knowledge? Previous literature and research on entrepreneurship highlight at least three aspects that can be important to consider in order to understand better the entrepreneurs' predominant mode of transforming an experience into entrepreneurial knowledge: the outcome of previous entrepreneurial events (Cardon & McGrath, 1999; Johannisson & Madsén, 1997; Minniti & Bygrave, 2001; Sitkin, 1992), the predominant logic or reasoning of the entrepreneur (Ravasi et al., 2004; Sarasvathy, 2001), and the entrepreneur's career orientation (Dyer, 1994; Katz, 1994). These aspects will be dealt with in the following sections.

The Outcome of Previous Entrepreneurial Events

One particular aspect that can be expected to have an impact on an entrepreneur's predominant mode of transforming an experience are the outcomes of previous entrepreneurial events in the entrepreneur's past (i.e., if the events turned out to be a success or a failure). Minniti and Bygrave (2001) argue that many successful entrepreneurs tend to choose actions that replicate, or are closely related to, the ones they have already taken, thereby exploiting their preexisting knowledge (see also McGrath, 1999; Sitkin, 1992; Starr & Bygrave, 1992; Wright et al., 1998). Successful experiences from prior business venturing can, for example, create a perceived "path" for successful business venturing where the entrepreneur has moved from his or her specific observations to make broader generalizations and theories on how to achieve success in subsequent new ventures.

It can further be suggested that successful experiences are likely to have long-lasting effects on strategies in subsequent business venturing due to tendencies toward path dependence and lock-in. Path dependence, in relation to entrepreneurial learning, means that although an entrepreneur was initially successful in adjusting his or her strategies in response to, for example, competition, regulations, and technology, the old successful strategies may not always reflect the current situation (Wright et al., 1998). Hence, even if the needs of the current situation have significantly changed from the time of the founding, the path of dependence of previous entrepreneurial events can make an entrepreneur

unable to respond to changing customer composition, changing regulations, changing technology, etc. through the exploration of new possibilities. This implies that previous success leads to persistence, at the expense of adaptability (Levinthal & March, 1993; Sitkin, 1992).

This line of reasoning can also be related to Cyert and March (1963) who assert that the changing of goals and procedures is primarily a function of previous experiences. For instance, when an entrepreneur discovers a solution to a problem by searching in a particular way, he or she will be more likely to search in that way when approaching future problems of the same type. On the other hand, when an entrepreneur fails to find a solution by searching in a particular way, it will be less likely that he or she searches in that way in future problems of the same type. Moreover, it can be argued that organizations develop, stabilize, and follow routines that are fairly difficult to change in the short run since they function as carriers of knowledge and experience (e.g., Nelson & Winter, 1982). This line of reasoning consequently implies that past success primarily stimulates entrepreneurs to focus their attention and activity on what has been working well in the past, involving the use of an iterative and exploitative mode of transforming an experience into knowledge (Sitkin, 1992).

Entrepreneurs' experiences may, however, not only originate from prior success, but from prior failures as well (Johannisson & Madsén, 1997; McGrath, 1999; Minniti & Bygrave, 2001; Ripsas, 1998; Stokes & Blackburn, 2002). Recent research suggests that many successful entrepreneurs credit their learning from past failures as a crucial aspect of their experience base (Cardon & McGrath, 1999; Johannisson & Madsén, 1997; Minniti & Bygrave, 2001; Sitkin, 1992). For instance, Sitkin (1992) argues that failure is an essential prerequisite for learning since it provides an opportunity to pinpoint why a failure has occurred. Failures provide entrepreneurs an opportunity to discover uncertainties that were previously unpredictable (McGrath, 1999; Sarasvathy, 2001; Sitkin, 1992), which implies that failure analysis can serve as a powerful mechanism to resolve uncertainty. This line of reasoning is in accordance with McGrath's (1999) arguments. She stresses that prior failure can have positive effects on entrepreneurs' knowledge base as it helps them in reducing uncertainty, increasing variety, and expanding the search for new opportunities. Moreover, it can be argued that failure stimulates entrepreneurs to pursue an explorative search for new possibilities where learning through experimentation becomes a central learning technique (Sarasvathy, 2001; Sitkin, 1992). Entrepreneurial failure can consequently stimulate entrepreneurs to choose new actions that are distinct from the ones they have already taken (Minniti & Bygrave, 2001), which intensifies their search for variance by exploring new possibilities as a coping strategy to reduce uncertainties (March, 1991; McGrath, 1999; Minniti & Bygrave, 2001; Sarasvathy, 2001).

However, not all failures are equally adept at facilitating learning. Those failures that are most effective at fostering learning are referred to as "intelligent failures," which are failures that provide a basis for altering future behavior through new information from which to learn (Sitkin, 1992). The goal of experiencing failure is consequently to obtain information that would not be available without the experience. Intelligent failures are those of modest outcome scale, which means that they have large enough outcomes to attract attention, and small enough outcomes to avoid negative responses (Lounamaa & March, 1987). Another prerequisite to consider a failure as intelligent is that the outcome of action must be uncertain (and not highly predictable) in order to provide new information from which to learn (Sitkin, 1992). This means that failures facilitate the entrepreneurs to pursue new ways of doing things when the current ways are relatively successful, and as such, stimulate them to learn by experimentation (Johannisson &

Madsén, 1997; Sarasvathy, 2001). Modest levels of failure can consequently promote willingness to take risks and foster resilience-enhancing experimentation.

From the above discussion, it seems fair to assume that failure fuels learning through experimentation—a learning technique that facilitates for entrepreneurs to increase variety, reduce uncertainty, and expand the search for new opportunities (McGrath, 1999; Sarasvathy, 2001; Sitkin, 1992). Past success may, on the other hand, stimulate confidence and persistence because individuals are rewarded for success (Sitkin, 1992), but also because success provides a secure and stable basis for the launching of future activity (Weick, 1984). Hence, routines and procedures are not strictly invariant, but will change as a result of search for new solutions when old ones fail to work (Cyert & March, 1963; Nelson & Winter, 1982). This implies that the way in which entrepreneurs' experiences are transformed into knowledge can be expected to be influenced by the entrepreneurs' previous experiences of success or failure.

The above discussion leads to the following proposition:

Proposition 3: The outcome of an entrepreneur's previous entrepreneurial events is related to his or her mode of transforming an experience into knowledge.

Proposition 3a: The higher the degree of past entrepreneurial failures, the higher the degree of an explorative mode of transforming an experience into knowledge.

Proposition 3b: The higher the degree of past entrepreneurial success, the higher the degree of an exploitative mode of transforming an experience into knowledge.

The Predominant Logic or Reasoning of an Entrepreneur

An additional aspect that can be expected to have an impact on entrepreneurs' mode of transforming an experience to knowledge is the predominant logic or reasoning in their present situation. Sarasvathy (2001) describes two kinds of predominant logic, or reasoning, in economic theories: causation and effectuation. Causal reasoning uses techniques of analysis and estimation to explore and exploit existing and latent markets. Effectual reasoning, on the other hand, calls for synthesis and imagination to create new markets that do not already exist. Causation consequently focuses on what ought to be done given predetermined goals and possible means, while effectuation emphasizes the question of what can be done given possible means and imagined ends (Sarasvathy, 2001). Effectual reasoning is, hence, a process that rests on logic of control, while causal reasoning primarily relies on logic of prediction. However, despite the differences, both causation and effectuation are integral parts of human reasoning that can simultaneously occur, overlapping, and intertwining over different contexts of decisions and actions (Sarasvathy, 2001).

Entrepreneurs rely on causation as the predominant logic when they focus on the predictable aspects of an uncertain future. The market is, hence, assumed to independently exist of the entrepreneur, and the main task is to grasp as much of that market as possible by being involved in planning and then gathering necessary information to see how strategies materialize according to plan and to identify possible reasons why plan and outcome differ. Entrepreneurs that rely on causation consequently take a particular effect as given, and the center of attention is on selecting between various means to create that effect. Hence, the choice of means is driven by an entrepreneur's knowledge of possible means, as well as the characteristics of the effect the entrepreneur wants to create (Sarasvathy, 2001). This means that entrepreneurs that rely on causation as the predominant logic are primarily involved in exploiting preexisting knowledge to come up with efficient competitive strategies in existing markets.

The reason for entrepreneurs to rely on effectuation as the predominant logic is when they choose to focus more on the controllable aspects of an unpredictable future, rather than the predictable aspects of an uncertain future (Sarasvathy, 2001). Entrepreneurs involved in the exploration of new possibilities often make decisions in the absence of preexisting goals, which implies the need to rely on effectual reasoning, rather than on conventional causation models (Sarasvathy, 2001). It can, hence, be argued that entrepreneurs that operate in highly ambiguous settings to a larger extent have to rely on an exploration of new business domains (Ravasi et al., 2004; Sarasvathy, 2001). This means that entrepreneurs that rely on effectuation as the predominant logic are primarily involved in exploiting contingencies around them to explore new environments and create markets that do not yet exist.

Taken together, the use of effectuation processes can be considered as preferable when an entrepreneur explores new possibilities and contingencies that unexpectedly arise over time. Entrepreneurs that use effectuation will hence prefer an experimental and iterative mode of transforming an experience when gathering information to discover the underlying distribution of future events (Johannsson & Madsén, 1997; Sarasvathy, 2001). The use of causalational processes might, on the other hand, be preferable in situations when preexisting knowledge forms the source of competitive advantage, such as expertise in a new particular technology (Minniti & Bygrave, 2001; Sarasvathy, 2001). Entrepreneurs that use causation will, in this respect, prefer an exploitative mode of transforming an experience.

The above discussion leads to the following proposition:

Proposition 4: An entrepreneur's predominant reasoning is related to his or her mode of transforming an experience into knowledge.

Proposition 4a: The more reliance on effectuation as the predominant reasoning, the higher the degree of an explorative mode of transforming an experience into knowledge.

Proposition 4b: The more reliance on causation as the predominant reasoning, the higher the degree of an exploitative mode of transforming an experience into knowledge.

The Career Orientation of an Entrepreneur

A third aspect that can be expected to have an impact on an entrepreneurs' predominant mode of transforming an experience into knowledge is the career orientation that influences his or her future actions. The basic premise of this argument is that most individuals develop diverse concepts of what career means to them, which greatly influence their choice of career path and experience at work (Larsson, Driver, Holmqvist, & Sweet, 2001). Extant research has showed that entrepreneurs are a heterogeneous group of individuals that differ in terms of characteristics and career motivations (e.g., Katz, 1994; Kolvereid & Bullvåg, 1993; Rosa, 1998; Westhead & Wright, 1998). Hence, it seems reasonable to suggest that entrepreneurs with different kinds of career motivations can be expected to seek different types of entrepreneurial events and learning situations (Minniti & Bygrave, 2001; Ronstadt, 1988; Starr & Bygrave, 1992), which in turn influence their predominant mode of transforming an experience into knowledge.

Based on the assumption that individuals have different conceptions of careers, Schein (1987) argues that individuals differ in their career motivations, and hence, possess distinctive "career anchors," which he refers to as "... the self-image that a person develops around his or her career, which both guides and constrains career decisions" (Schein, 1987, p. 155). Similar arguments are also pointed out by Brousseau, Driver, Enero, and Larsson

(1996) who have developed a model that differentiates between four basic career concepts held by individuals in terms of direction (of career movement or change) and frequency of movement within and across different kinds of work over time (durability in a given field of work). The model developed by Brousseau, Driver, Enero, and Larsson (1996) identified four distinctive career concepts: linear, expert, spiral, and transitory.¹ These four patterns of career preferences are based on distinctly different sets of motives that underlie each of these career orientations. This means that individuals who differ in their particular career orientations also predictably differ in their underlying work and career-related motives (Brousseau et al., 1996).

The ideal linear career consists of a progressive series of steps upward in a hierarchy (such as a managerial hierarchy) with infrequent changes in career field, while upward promotions to positions of increasing authority and responsibility are desired as frequently as possible (Larsson et al., 2001). Entrepreneurs with a linear career orientation are hence motivated by opportunities to make important things, implying that power and achievement become the key motives to their career choice. It is consequently the prospect of achievement satisfaction, not personal wealth that drives the entrepreneur, although wealth and status are an important measure of how well one is doing (Katz, 1994; McClelland, 1961). The ideal expert career is, on the other hand, characterized by a lifelong commitment to a specific occupation, in which an individual strives for further development and refinement of his or her knowledge within that specialty. This career orientation can hence be compared to the professional small business “craftsman” who develops praxis in terms of genuine (often tacit) knowledge within a specific profession (Dreyfus & Dreyfus, 1986; Molander, 1993; Schön, 1983). Both entrepreneurs that favor linear and expert career orientations can be expected to be less inclined to explore new possibilities and domains since this may divert them from the achievement, prestige, or specialist knowledge that they so highly strive for. Rather, the literature suggests that these kinds of entrepreneurs are likely to have a higher degree of exploitation of preexisting knowledge since they mainly strive to refine their preexisting knowledge to become experts within their specific profession's (Johannesson, 1992a; Molander, 1993; Schön, 1983).

Individuals with a spiral career orientation prefer to explore new activities related to previous ones in which creativity and personal development become the key motives (Larsson et al., 2001). Entrepreneurs favoring the spiral career can thus be characterized by periodic major moves across occupational areas, specialties, or disciplines that are closely related to previous ones. This means that the new field draws on knowledge developed in the previous field and at the same time provides opportunities to develop an entirely new set of knowledge. Lastly, individuals with a transitory career profile make frequent changes of field, organizations, and jobs in which variety and independence are the key motives to their career choices. Individuals who intentionally pursue transitory careers rarely consider themselves as actually having careers. Instead, they are likely to treat themselves to have a fascinating smorgasbord of work experiences, seeking variety and independence (Brousseau et al., 1996). Entrepreneurs who have either a transitory or a spiral career orientation can be expected to favor new entrepreneurial projects in order to search for new challenges and learn something new (MacMillan, 1986; McGrath, 1999; Westhead & Wright, 1998). The career patterns of these entrepreneurs can be

1. The four career concepts are not necessarily pure in nature but can also be combined in various ways to form “hybrid” concepts, which means that they can be used to describe various patterns of career preferences (Larsson, Brousseau, Driver, Holmqvist, & Tarnovskaya, V, 2003).

described as project oriented and “episodic” implying that the competence developed, which consists of skill diversity, networking, speediness, and adaptation (Brousseau et al., 1996). Hence, the literature suggests that these kinds of entrepreneurs are likely to have a higher degree of exploration of new possibilities compared to the focus they put on the exploitation of preexisting knowledge.

The discussion above leads to the following proposition:

Proposition 5: The career orientation of an entrepreneur is related to his or her mode of transforming an experience into knowledge.

Proposition 5a: Entrepreneurs with a transitory or a spiral career orientation may, to a larger extent, focus on an explorative mode of transforming an experience into knowledge.

Proposition 5b: Entrepreneurs with a linear or an expert career orientation may, to a larger extent, focus on an exploitative mode of transforming an experience into knowledge.

Conclusions

This article has reviewed and synthesized available research into a conceptual framework to enhance our understanding of entrepreneurial learning as an experiential process. The role of experience is highlighted as central as it provides entrepreneurs the possibility to improve their ability to discover and exploit entrepreneurial opportunities and to learn how to overcome traditional obstacles when organizing and managing new ventures (i.e., the liabilities of newness). It is also argued that there is a need to reconsider the predominant static view on entrepreneurial learning, which presumes a direct link between a particular experience and the knowledge gained from this experience. Hence, even if experience is conceived as an important source of entrepreneurial learning, it is necessary to acknowledge the experiential process where experience is transformed into entrepreneurial knowledge.

The conceptual framework provides a theoretical platform from which to further explore the dynamics of entrepreneurial learning as an experiential process. The framework does not solely focus on the relationship between entrepreneurs' experiences and the development of entrepreneurial knowledge, but is also directed toward the intermediate process where their experiences are transformed into such knowledge. Based on these arguments, the process of entrepreneurial learning is suggested to consist of three main components: entrepreneurs' career experiences, the transformation process, and entrepreneurial knowledge in terms of increased effectiveness in opportunity recognition and in coping with the liabilities of newness. These components are then discussed in order to develop the arguments on how experience is transformed into knowledge, through the exploration of new possibilities and the exploitation of preexisting knowledge, which in turn influence the development of the entrepreneurs' ability to discover and exploit entrepreneurial opportunities as well as coping with the traditional obstacles facing new ventures. The framework consequently suggests a need to draw a distinction between the events experienced by an entrepreneur and the knowledge thereby acquired when studying the process of entrepreneurial learning (Reuber, Dyke, & Fischer, 1990).

Implications for Future Research

The conceptual framework presented in this article may serve as a point of departure for future empirical research on entrepreneurial learning. The article has developed

several propositions on how entrepreneurs' career experiences are transformed into knowledge, through the exploration of new possibilities and the exploitation of preexisting knowledge, which in turn influence the development of the entrepreneurs' ability to discover and exploit entrepreneurial opportunities as well as coping with the traditional obstacles facing new ventures. An avenue for future research could then be to address and develop operationalizations of the constructs in the framework, and empirically test the propositions to confirm or reject the theoretical assumptions in this study. In assessing entrepreneurs' career experiences, researchers could, for example, draw on measures similar to previous work in the area (e.g., Cooper, Woo, & Dunkelberg, 1989; Dyke, Fischer, & Reuber, 1992; Lamont, 1972; Reuber & Fischer, 1994; Sandberg & Hofer, 1987; Stuart & Abetti, 1990; Vesper, 1980). Based on this stream of literature, it is suggested that entrepreneurs' career experiences can be broadly divided into prior start-up experience, prior management experience, and prior industry-specific experience. What regards the two proposed learning outcomes, researchers could assess an entrepreneur's ability to recognize and act on opportunities by drawing on measures similar to those developed by Hills, Lumpkin, and Singh (1997) and Ucbasaran et al. (2003) on opportunity recognition behaviors. Researchers could furthermore measure an entrepreneur's ability to cope with the liabilities of newness by asking respondents to assess the validity of statements linked to the wide variety of sources that has been associated with the liability of newness in the literature, such as for example, the cost of learning new tasks, conflicts regarding new organizational roles, the absence of informal organizational structures, lack of organizational stability to ensure customer trust (Shane & Khurana, 2003; Shepherd et al., 2000).

Another main feature in the developed framework is the transformation of experience to knowledge through either the exploration of new possibilities or the exploitation of preexisting knowledge. The respondents' reliance on exploration or exploitation as their predominant mode of transforming an experience into knowledge could here, for example, be measured by drawing on the theoretical work of March (1991) and Levinthal and March (1993). Specifically, the researchers could ask the respondents to assess the validity of statements connected to exploration (including terms such as variation, experimentation, discovery, and playfulness) and exploitation (including terms such as refinement, efficiency, implementation, and execution), respectively.

The literature review has also elaborated on three major factors that are expected to have an influence on how entrepreneurs' experiences are transformed into experientially acquired knowledge: the outcome of previous entrepreneurial events, the entrepreneurs' predominant logic or reasoning, and the entrepreneurs' career orientation. Regarding the first of the three main determinants of the transformation process, researchers could operationalize the outcomes of previous entrepreneurial events based on the arguments in the work of Sitkin (1992), Starr and Bygrave (1992), and McGrath (1999) where previous success/failure with both business ideas as well as firms should be included. Moreover, researchers could operationalize the entrepreneurs' predominant logic or reasoning based on the arguments proposed by Sarasvathy (2001). Specifically, the researchers could ask the respondents to assess the validity of relevant statements connected to the reliance on the logic of control and the logic of prediction. Finally, one recent example of a reliable operationalization of the career orientation of individuals has been developed and empirically tested by Brousseau et al. (1996). Using this developed scale, researchers can ask respondents to gauge their choice of career path and experience at work in terms of direction (career movement or change) and frequency of movement within and across different kinds of work over time (durability in a given field of work).

Another avenue for future research could be to investigate the link between individual and organizational-level learning in order to increase our understanding of the role of social relations and the embedding of learning techniques that can develop the adoption of new ideas and technologies, and empower innovation in new and small ventures (Deakins, O'Neill, & Mileham, 2000). In new and small firms, entrepreneurial learning can be expected to influence and closely mirror organizational learning, as an entrepreneur often has a dominant position as the central actor within the organization, and is the one that develops routines that encourage flexibility and the ability to respond to continuous change (Johannsson, 2000). It can hence be expected that the development of an entrepreneurial culture will be strongly influenced by individual efforts toward innovation and growth in emerging organizations. However, the literature on organizational learning is primarily focused on large organizations, while the role of individual learning for successful enterprise development in small firms has been largely neglected (Deakins et al., 2000). Much consequently remains unknown regarding the drivers of entrepreneurial learning in new and small firms, and there is a lack of theoretical knowledge of how successful entrepreneurs develop their strategic learning to decrease the degree of novelty (or ignorance) associated with these ventures (Gibb, 1997; Shepherd et al., 2000).

Implications for Practice

The present study may finally provide some implications for practice. The review and synthesis of the literature suggest that entrepreneurship is primarily learned by experience and discovery, and that entrepreneurial learning should be conceived as a lifelong process, where knowledge is continuously shaped and revised as new experience takes place (Sullivan, 2000). Hence, the development of entrepreneurial knowledge of individuals is a slow and incremental process that evolves throughout their professional lives. This means that attempts to stimulate entrepreneurial activities through formal training and education are not likely to have any strong and direct impact on the development of entrepreneurial knowledge. Rather, educational policy efforts aimed at stimulating entrepreneurial activities should primarily focus on developing creativity, critical thinking, and reflection among individuals, which in turn can have a profound influence on both their motivation and ability to develop entrepreneurial knowledge throughout their professional lives. Moreover, these educational efforts should start early in the system, and not only at its very end (Johannsson & Madsén, 1997). Furthermore, the review of literature and research indicates that the experience relevant for developing entrepreneurial knowledge not only involves the actual start-up of a new venture, but also the preparatory activities that enable the initial venture to be started (Rae & Carswell, 2001; Reuber & Fischer, 1993) as well as the subsequent career events that entrepreneurs encounter throughout their professional lives (Deakins & Freel, 1998; McGrath, 1999). This means that attention should also be directed to the issue of how potential entrepreneurs can progress throughout their careers, and then start a venture when timing is right. Hence, policy aimed at stimulating individuals to undertake entrepreneurial activities should focus on efforts to make entrepreneurship more attractive as a potential career, such as for example, support for reconciliation of family life and entrepreneurship and incentives in the form of social security for entrepreneurs.

Taken together, it seems fair to argue that studies into the learning process of entrepreneurs so far have lacked a common framework, and many questions regarding entrepreneurs' learning still remain unanswered. Only studying the learning outcomes of entrepreneurs' prior experiences is of little relevance to the entrepreneurship research

field. What is needed is the inclusion of concepts and theories that explore entrepreneurial learning as an experiential process, and how this process evolves throughout the entrepreneurial career. Moreover, different groups of entrepreneurs have different characteristics and career motivations (Katz, 1994; Kolvereid & Bullvåg, 1993; Rosa, 1998; Westhead & Wright, 1998), which lead them to focus on distinctive learning aspects and processes when transforming their experiences into knowledge. This calls for further and intensified studies on the process of entrepreneurial learning, and future research to develop this important field of study within the entrepreneurship domain is consequently warranted.

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