

Nascent Entrepreneurs and Venture Emergence: Opportunity Confidence, Human Capital, and Early Planning

Dimo Dimov

University of Connecticut

ABSTRACT Nascent entrepreneurs continuously evaluate the merits of the opportunities they pursue and so can abandon those that lack promise and persist with those that remain attractive. This paper articulates this evolving judgment about the opportunity as the nascent entrepreneur's opportunity confidence. It situates this construct in the context of the nascent entrepreneur's human capital and early planning actions in respect to the pursued opportunity, and in respect to the emergence of the nascent venture. Analyses of PSED data show that opportunity confidence positively affects venture emergence and that, through it, entrepreneurial experience and early planning have only indirect effects on venture emergence. In contrast, industry experience has a direct, positive effect on venture emergence. These results provide some novel insights into the nascent entrepreneurial process as well as into the role of human capital and early planning in that process.

INTRODUCTION

Let us imagine ourselves travelling on a plane to the land of entrepreneurship. As we begin our descent, we look out the window and see a dynamic, constantly evolving landscape. As we descend further down, we see a land bubbling with new ventures that prevent it from cooling down into a solid state. As we land, we feel tremor and grumbling underneath, and see a vast movement of matter towards the many yet narrow and constantly shifting, closing, and opening vents in the ground through which new ventures emerge. Fascinated, we take a closer look: each piece of moving matter is a nascent venture striving to emerge; a tiny ship driven by a nascent entrepreneur and fuelled by opportunity of not fully known quantity and energy content. It aims to reach one of the vents, but often it finds itself pushed aside by others or runs into an already closed vent.

Address for reprints: Dimo Dimov, University of Connecticut, School of Business, Department of Management, 2100 Hillside Road, Unit 1041, Storrs, CT 06269-1041, USA (dimo.dimov@business.uconn.edu).

Some of the ships simply run out of fuel or are abandoned for being too slow; others run longer and faster, and keep trying to emerge above ground. Many make it through. And for those that do, all the underground noise and hustle gradually fade away and an aura of inevitability enshrines them.

Entrepreneurship scholars are inherently interested in studying the noise and hustle of pre-emergence. Increased methodological rigour in the identification of nascent entrepreneurs – i.e., people currently in the process of starting a business (Reynolds and White, 1997) – and the launch of large-scale empirical programmes (Reynolds, 2000; Reynolds and Curtin, 2008) have attracted many researchers to the study of nascent entrepreneurial efforts (Davidsson, 2006). Of particular interest to scholars has been the progress of these efforts towards venture emergence, as captured by the accumulation of various venturing activities (Davidsson and Honig, 2003; Samuelsson and Davidsson, 2009), the achievement of first sale (Newbert, 2005) or the establishment of operating business (Lichtenstein et al., 2007; Parker and Belghitar, 2006; Rotefoss and Kolvereid, 2005). Such studies are based on the simple premise that nascent entrepreneurs pursue opportunities; in turn, these opportunities are implicitly treated as equally and evenly appealing to those pursuing them. In other words, each ‘ship’ is deemed properly fuelled all the time and its failure to emerge is attributed solely to deficient moves by the pilot or to inhospitable environment.

But for ships that run out of fuel or move too slowly, it makes sense for the nascent entrepreneurs to abandon them and look for new ones. Initially, each ship may seem appealing, but, once fired up and on the road, it may prove to have too little or too weak fuel. Recent theoretical elaboration on the nature of entrepreneurial opportunities emphasizes their prospective, subjective, and uncertain nature. An opportunity can be best regarded as a venture idea (Davidsson, 2003) or as unfolding from a stream of continuously developed and modified ideas (Dimov, 2007b); it cannot be separated from the particular individual behind it (Companys and McMullen, 2007; Dimov, 2007a; Klein, 2008) and is intertwined with individual beliefs about what is possible, probable, and desirable in the market space (McMullen and Shepherd, 2006; Shepherd et al., 2007). In this sense, an opportunity is continuously re-evaluated in the light of the nascent entrepreneur’s actions and their outcomes. Therefore, its appeal to the nascent entrepreneur represents a continuous and evolving judgment that is an indelible part of the entrepreneurial process and, as such, needs to be explicitly articulated in it.

This paper aims to conceptualize this judgment and examine its implications for venture emergence. It operates within a stylized setting in which nascent entrepreneurs set out to pursue opportunities and these venturing efforts can eventually lead to the establishment of new ventures or be discontinued altogether. A nascent venture’s evolving position or emergence can thus be traced along the continuum between these two extremes. At each point, nascent entrepreneurs can receive and consider new, previously unavailable information about the pursued opportunities and, consequently, revise or reaffirm their intention to proceed further. In this sense, sustained nascent entrepreneurial effort requires sufficient confidence or conviction by the nascent entrepreneur in the feasibility and operability of the opportunity at hand. I call this evolving certitude

opportunity confidence. The nascent entrepreneurs' opportunity confidence reflects two personal beliefs about the opportunity at hand: (1) that it is feasible; and (2) that they will be able to establish a venture that exploits it.

To examine the implications of opportunity confidence for venture emergence, I situate this new construct in the context of the nascent entrepreneur's knowledge and actions in respect to the pursued opportunity. In line with previous work, I focus on the nascent entrepreneur's human capital (Davidsson and Honig, 2003; Rotefoss and Kolvereid, 2005), and particularly on its aspects that are specific to the venturing effort, namely entrepreneurial experience and industry experience (Bruderl et al., 1992). In addition, I focus on the early planning efforts by the nascent entrepreneur (Delmar and Shane, 2003; Honig and Karlsson, 2004). These factors are instrumental not only for revealing and developing promising opportunities but also for uncovering and discontinuing those that lack promise. Therefore, they can affect the nascent entrepreneur's opportunity confidence and, ultimately, venture emergence.

I test several proposed relationships using data on solo nascent entrepreneurs from the Panel Study of Entrepreneurial Dynamics (PSED), the largest and most representative study of this most elusive part of the entrepreneurial process. The results show that opportunity confidence positively affects venture emergence and that, through it, entrepreneurial experience and early planning have only indirect effects on venture emergence. In contrast, industry experience has a direct, positive effect on venture emergence. More specifically, opportunity confidence decreases the likelihood of discontinuation and increases the likelihood of reaching operating status, whereas industry experience only decreases the likelihood of discontinuation.

This study allows an elaboration, extension, and reconciliation of existing theories of entrepreneurship and thus aims to make three contributions to the entrepreneurship literature. First, it articulates opportunity confidence as a more proximate, guiding factor in the nascent entrepreneurial process. It suggests a more nuanced link between the nascent venture's potential, as afforded by the nascent entrepreneur's human capital and planning activities, and its actual realization. Opportunity confidence reflects the unfolding promise of the opportunity, as judged by the nascent entrepreneur, and thus constitutes a gateway to the continuation or abandonment of the venturing efforts. Second, this paper differentiates the opportunity-specific dimensions of the nascent entrepreneur's human capital to highlight their direct and indirect roles in venture emergence. While the extant literature tends to treat human capital as a monolithic construct that can be interchangeably captured by various experience-based proxies, the current study elucidates the different skills and considerations that can emerge from experience relevant to the opportunity at hand. Third, the paper offers insights into the role of planning in entrepreneurship. While the future indeed cannot be contained within a business plan, active exploration of the merits of the opportunity can provide a basis for more informed judgment and timely termination of venturing efforts with poor prospects. In this sense the dominant association of planning with the preparation of a formal business plan needs to be balanced with the notion of planning as a learning tool for the nascent entrepreneur. Overall, the paper seeks to inspire a conversation about the nature of success in the earliest stages of the entrepreneurial process.

THEORY AND HYPOTHESES

Nascent Entrepreneur, Opportunity, and Venture Emergence

A nascent entrepreneur is someone^[1] in the process of establishing a business venture (Reynolds and White, 1997). In this regard, the nascent entrepreneur can be seen as pursuing an opportunity, i.e. a possibility to introduce new products or services, serve new markets, or develop more efficient production methods in a profitable manner (Casson, 1982; Shane and Venkataraman, 2000). But before such a venture is actually established, the opportunity is just a venture idea (Davidsson, 2006; Dimov, 2007b). In other words, the pursued opportunity is perceptual in nature, propped by the nascent entrepreneur's personal beliefs about the feasibility of the venturing outcomes the nascent entrepreneur seeks to achieve (Dimov, 2007a; McMullen and Shepherd, 2006; Shepherd et al., 2007). Its prescience and value cannot be confirmed *ex ante* but only gradually, in the context of the actions that the nascent entrepreneur undertakes towards establishing the venture (Davidsson, 2003; Dimov, 2007b; Sarasvathy, 2001). Ultimately, these actions can lead to a path that the nascent entrepreneur deems no longer attractive or feasible, or result in the emergence of a (viable) business. In this sense, over time, the nascent venture can move towards being discontinued or towards emerging successfully as an operating entity.

While some research has focused on the recognition of and intention to pursue opportunities (Corbett, 2007; Dimov, 2007a; Shane, 2000; Shepherd and DeTienne, 2005), beginning to pursue an opportunity is by no means a sufficient and reliable predictor that a venture will ultimately emerge; rather, the process of venture emergence is a gradual, iterative one, in which nascent entrepreneurs continuously evaluate the prospects of their opportunities (Dimov, 2007b). Each seeks to develop a more solid understanding of the pursued opportunity in order to make more informed judgments of its merits and devise better strategies for converting these merits into a viable venture. Indeed, 'the process of venture formation might also be viewed as a process of learning, of overcoming the liabilities of newness through information acquisition' (Cooper et al., 1995, p. 108).

The nascent entrepreneur's current venturing efforts represent a distinct unit of analysis and reside at a distinct, new-enterprise level of analysis (Davidsson and Wiklund, 2001). Indeed, the venturing efforts may occupy only part of the nascent entrepreneur's time and use only part of his or her human and social capital; and the nascent entrepreneur can engage in other venturing pursuits. Consistent with this, I think of the collection of these efforts and their associated actions and judgments as a nascent or emerging venture. Each emerging venture reaches a distinct, ultimate fate, i.e. it can emerge as a new venture or be discontinued. In this sense, the nascent entrepreneur is just an input provider for the emerging venture. Nevertheless, at their earliest stages, the emerging ventures receive almost all of their inputs from the nascent entrepreneurs and thus can be deemed largely dependent on them. The degree of dependence can change as the commitment of the nascent entrepreneurs intensifies or as they bring in new stakeholders. Gradually, as the emerging venture becomes a more complex organization of actors, resources, and stakeholders, it increases its independence from the nascent entrepreneur. But at its early stages, which are the focus of this paper, its evolution and

progress is intertwined with the experience, judgments, and actions of the nascent entrepreneur.

Opportunity Confidence and Venture Emergence

As nascent entrepreneurs enact their venture ideas, they can verify or reject their guiding assumptions and consider whether their efforts should be intensified, redirected, or discontinued. In trying to engage particular stakeholders, acquire resources, and achieve certain milestones, nascent entrepreneurs receive pertinent information that helps them update and refine their knowledge and beliefs about the opportunity (Dimov, 2007b; Shepherd et al., 2007). In some cases, their beliefs are reinforced or even enhanced; in others, their beliefs are challenged or weakened, whereby they face increasing signals that the opportunity at hand is not viable or that they are not properly skilled to exploit it (McMullen and Shepherd, 2006).

Nascent entrepreneurs can choose to abandon the opportunities that lack promise and to continue to pursue the ones that hold promise. Therefore, the evolution and progress of the emerging venture is critically dependent on the nascent entrepreneur's perceptions and subjective judgment (Kor et al., 2007; Shaver and Scott, 1991; Shook et al., 2003) of the merits of the opportunity. In this sense, sustained nascent entrepreneurial effort requires sufficient confidence or conviction by the nascent entrepreneur in the feasibility and operability of the opportunity at hand. Such certitude can reflect two personal beliefs by the nascent entrepreneurs about the opportunity at hand: (1) that it is feasible; and (2) that they have the knowledge and skills to successfully establish the business, i.e. their start-up self-efficacy. I refer to these beliefs collectively as the nascent entrepreneur's opportunity confidence. So conceptualized, opportunity confidence is a hypothetical, formative construct that is induced from or captures the summary effect of a block of factors that individually can represent conceptually distinct causes of some outcome of interest (Edwards and Bagozzi, 2000; Heise, 1972). I discuss these beliefs below and relate them to venture emergence.

Opportunity feasibility belief. The success of the venturing effort hinges on several critical milestones, such as attracting customers, implementing competitive strategies to fend off rivals, and acquiring financial, physical, and human resources. To the extent that these are not deemed achievable, nascent entrepreneurs will be more likely to abandon their efforts as signs of trouble accumulate. Indeed, as I noted earlier, the perceived value of the opportunity is an important aspect of the opportunity exploitation process (Eckhardt and Shane, 2003). I stress here that the perceived feasibility of the opportunity is individual-specific – different individuals possessing different knowledge and attitudes towards uncertainty, as well as engaging in different efforts to explore the feasibility of a particular opportunity, will likely reach different conclusion about its feasibility (McMullen and Shepherd, 2006). As succinctly expressed by Ludwig von Mises, 'What distinguishes the successful entrepreneurs from other people is precisely that fact that they do not let themselves be guided by what was and is, but arrange their affairs on the ground of their opinion about the future. They see the past and present as other people do; but judge the future in a different way' (von Mises, 1949, p. 584).

More generally, the perceived feasibility of an action is an important predictor of intentions to engage in that action (Ajzen, 1991). This notion underlies the discussion of entrepreneurial intentions, i.e. the intention to start a business at some point in time (Boyd and Vozikis, 1994; Krueger et al., 2000) and of opportunity intentions, i.e. the intention to pursue a particular opportunity (Dimov, 2007a). Similarly, I argue that, once the venturing efforts are initiated, the ongoing evaluation of the feasibility of the opportunity is a key factor in the sustenance of the nascent entrepreneur's intention to pursue the opportunity, which can ultimately affect the successful emergence of the venture.

Start-up self-efficacy. In addition to assessing the feasibility of the opportunity, the nascent entrepreneurs also assesses their ability to establish the venture. This assessment can be represented by the notion of start-up self-efficacy. Self-efficacy, originally defined by Bandura (1977) as a belief in one's ability to execute actions, can affect one's cognition, self-confidence, courses of action, and perceptions of control. As such, it has emerged as an important predictor of success, with higher levels of self-efficacy increasing perseverance and goal achievement (Bandura, 1989). With the increasing interest in entrepreneurial cognition (Mitchell et al., 2002), self-efficacy has been portrayed as distinct characteristic of entrepreneurs (Chen et al., 1998; Markman et al., 2002), as an important factor in the decision to become and persevere as an entrepreneur (Zhao et al., 2005), and as an important component of entrepreneurial decision-making (Krueger and Dickson, 1994).

When viewed in the context of a specific task, self-efficacy beliefs can be placed on a continuum in regard to their specificity to the task (Bandura, 1997), ranging from general, distal, trait-like beliefs in one's ability to perform successfully (Chen et al., 2001), through more intermediate beliefs that apply to a range of similar tasks, such as job self-efficacy, creative self-efficacy (Tierney and Farmer, 2002), and entrepreneurial self-efficacy (Chen et al., 1998), to more proximate, state-like, task-specific beliefs. Although distal and proximal forms of self-efficacy can have independent effects on outcome variables (Tierney and Farmer, 2002), the instrumentality of self-efficacy beliefs increases as they become more task-specific (Gist, 1987).

I argue that, in the context of their start-up efforts, nascent entrepreneurs form and adapt specific beliefs about their ability to successfully establish the *particular* venture and to execute the specific tasks inherent to *that* start-up process. I refer to this belief as *start-up self-efficacy*. It is a task-specific belief representing an emergent state of the nascent entrepreneurs. It reflects an evolving belief about their ability to bring the venturing efforts to fruition. As such, it reflects not the nascent entrepreneurs' general attitude towards entrepreneurship, but their current attitude towards the venturing tasks at hand. Compared to entrepreneurial self-efficacy, which represents a more general belief in one's entrepreneurial abilities and can pertain to any start-up effort (Boyd and Vozikis, 1994; Chen et al., 1998), start-up self-efficacy is more proximate and specific to the emerging venture. It is important for the nascent entrepreneurs' persistence with the current emerging venture as it can increase their commitment to the venture and make them more likely to persevere in the face of adversity.

Collectively, the nascent entrepreneurs' opportunity feasibility and start-up self-efficacy beliefs represent their confidence about the pursued opportunity. As such,

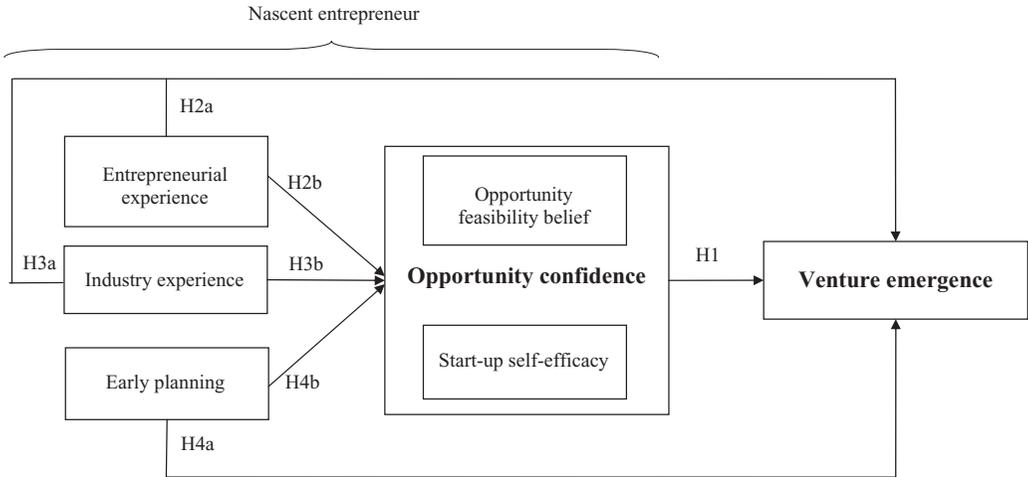


Figure 1. Conceptual model of nascent entrepreneurs and venture emergence

opportunity confidence is instrumental for venture emergence. Lack of confidence in the opportunity can render the nascent entrepreneur dejected and undermines the start-up process; sustained or increased confidence can propel the nascent entrepreneur forward, towards achieving the next milestone and, ultimately, towards the successful establishment of an operating venture.

Hypothesis 1: There is a positive relationship between the nascent entrepreneurs’ opportunity confidence and venture emergence.

In the next sections, I situate opportunity confidence in the context of the nascent entrepreneurs’ knowledge and actions in respect to the pursued opportunity, as represented by their human capital and early planning activities. These factors are commonly perceived as instrumental for venture success. The overall conceptual model is outlined in Figure 1.

Opportunity-Related Human Capital and Venture Emergence

Human capital represents the knowledge and skills that individuals bring to a task they set out to perform. The human capital literature typically distinguishes between general human capital, pertaining to overall education and life experience, and specific human capital, pertaining to education and experience specific to a particular activity or context (Becker, 1975). The basic tenet of human capital theory is that the greater the human capital the better the performance at a particular task (Becker, 1975). Based on this premise, a human capital perspective has been used to predict a variety of entrepreneurial outcomes such as becoming a nascent entrepreneur or self-employed, new venture formation, and new venture performance and survival. Much of this research effort has focused on the effects of general human capital, typically represented by age, education,

and work experience. There is evidence that general human capital can increase the likelihood of engaging in start-up activities (Davidsson and Honig, 2003) and of venture survival (Bates, 1990; Bruderl et al., 1992; Cooper et al., 1994).

But recent arguments and findings suggest that the more specific components of human capital, i.e. those more closely related to the venture's context or to performing various venture creation activities, are more proximate and instrumental predictors of various new venture milestones such as opportunity recognition (Corbett, 2007; Ucbasaran et al., 2008), progress through the start-up process (Bruderl et al., 1992; Davidsson and Honig, 2003), and survival (Bosma et al., 2004). In view of this, I focus on the nascent entrepreneurs' human capital that is specific and perhaps best tuned to the particular venturing efforts, while also controlling for their general human capital characteristics.

In a very elaborate discussion of the nature of human capital, Bruderl et al. (1992) emphasize the need to adapt the construct of specific human capital to the particular context of study and, accordingly, distinguish two components of entrepreneurs' human capital that are specific to their current venturing efforts: entrepreneurial experience and industry experience. They can increase the productivity of the nascent entrepreneur in executing the tasks associated with launching and managing the business as well as in establishing and managing relationships with customers, suppliers, and investors in the particular industry. As such, they are important for the nascent entrepreneur's pursuit of the particular opportunity and thus for studying venture emergence. In addition, these two components of human capital have been widely used in the literature, albeit offering mixed empirical evidence in regard to various entrepreneurial milestones. This suggests that there is an opportunity for a deeper theoretical elaboration of their influence on venture emergence.

Entrepreneurial experience. The basic, and very intuitive premise, for entrepreneurial experience is that previous experience with starting and managing entrepreneurial ventures can provide considerable expertise related to identifying and undertaking the steps as well as navigating through the uncertainties associated with establishing and managing a new venture. Indeed, evidence suggests that previous entrepreneurial experience is positively associated with both becoming a nascent entrepreneur (Davidsson and Honig, 2003) and successfully founding a business (Rotefoss and Kolvereid, 2005). Similarly, previous self-employment is associated with greater likelihood of future self-employment (Carroll and Mosakowski, 1987; Evans and Leighton, 1989). Within the nascent entrepreneurial process, evidence shows that prior entrepreneurial experience can positively affect venturing progress but has no effect on the likelihood of first sale (Davidsson and Honig, 2003). But recent evidence also shows the opposite, i.e. that entrepreneurial experience is associated with higher initial venturing progress but has no effect on subsequent progress (Samuelsson and Davidsson, 2009). In regard to new venture outcomes, evidence shows that entrepreneurial experience positively affects initial firm size (Colombo et al., 2004), firm growth (Bruderl et al., 1992; Colombo and Grilli, 2005), profitability (Bosma et al., 2004), and external funding (Chatterji, 2009). But interestingly, its effect on new venture survival has been consistently lacking (Bosma et al., 2004; Bruderl et al., 1992; Delmar and Shane, 2003, 2004) and there have been no effects on

the timing of new product introduction (Schoonhoven et al., 1990) and new venture performance (West and Noel, 2009).

This brief review suggests that previous entrepreneurial experience can indeed provide valuable skills for the successful implementation of the nascent entrepreneur's current venturing efforts, but they do not necessarily ensure the nascent entrepreneur's persistence with these efforts. Therefore, two arguments can be presented about the value of entrepreneurial experience for venture emergence. First, entrepreneurial experience can facilitate venture emergence. Because there is no scripted template for the proper steps to undertake in starting up a new venture, undergoing previous start-up efforts – whether successful or unsuccessful – provides valuable lessons for the entrepreneur in terms of understanding the proper sequence of activities or the right approach to follow in attracting customers, suppliers and other stakeholders in the business (Bruderl et al., 1992). Indeed, serial entrepreneurs can make more elaborate market entry decisions as they learn to generate and consider various alternatives (Gruber et al., 2008). Furthermore, prior entrepreneurial experience can help identify and utilize sources of information that prove essential at critical junctions of the start-up process (Cooper et al., 1995). Information sources discovered in previous venturing efforts – whether deliberately or serendipitously – can give the nascent entrepreneurs an edge in their current start-up efforts and save time and frustration. Finally, more experienced entrepreneurs will likely demonstrate higher tolerance for decision uncertainty, having honed their ability to act in the context of missing information or lack of feedback. They can learn from their experience in previous ventures that information is never fully available and that certain decisions can be taken on a hunch (Allinson et al., 2000), while staying on the alert for new information and signals that a change of course is needed. Overall, the tacit, procedural knowledge provided by prior entrepreneurial experience represents a valuable resource for guiding the nascent entrepreneur's efforts towards venture emergence.

Hypothesis 2a: There is positive relationship between the nascent entrepreneur's entrepreneurial experience and venture emergence.

The second argument that can be made is that entrepreneurial experience can only matter when an opportunity is deemed worth pursuing and, consequently, not abandoned due to its reduced or unattractive potential. Indeed, knowing what needs to be done and how does not imply a 'Midas touch', i.e. not everything can be turned into gold. Given the evolving judgment by nascent entrepreneurs on the merits of the opportunity, i.e. their opportunity confidence, reduced opportunity confidence can suppress the performance advantage bestowed by entrepreneurial experience. This suggests that the mechanism through which entrepreneurial experience can affect venture emergence may be not only direct and linear, but also indirect. Indeed, a major premise of learning theories is that prior experience can facilitate a better understanding of the problem at hand (e.g. Kolb, 1984). In this regard, the lessons of prior entrepreneurial endeavours can facilitate a more precise assessment of the potential of the opportunity as well as self-efficacy assessment for the current venturing task (Gist and Mitchell, 1992). More generally, relevant knowledge can lead to the creation of more potent cognitive maps of the opportunity space that can help reveal gaps in information or reasoning that

require more immediate attention (Fiol and Huff, 1997). Experienced entrepreneurs may utilize different information search patterns (Cooper et al., 1995; Forbes, 2005) and thus determine more quickly the merits of the opportunity. Therefore, entrepreneurial experience can help the nascent entrepreneur make sound judgments regarding the opportunity at hand, but these judgments can in turn be positive or negative and thus can both boost and deflate the venturing effort.

Hypothesis 2b: The nascent entrepreneur's opportunity confidence mediates the relationship between entrepreneurial experience and venture emergence.

Industry experience. Experience in the current industry can also provide valuable knowledge, skills, and personal connections to the nascent entrepreneur. There has been some tenuous evidence that industry experience is associated with successful transition from nascent to infant entrepreneur (Wagner, 2005), but also no evidence of association with venturing progress (Samuelsson and Davidsson, 2009). In regard to new ventures, some studies have shown that industry experience has a positive effect on funding (Chatterji, 2009), and growth and survival (Bruderl et al., 1992; Cooper et al., 1994; Stuart and Abetti, 1990; Van de Ven et al., 1984), while others have found no effect on survival (Delmar and Shane, 2004), on the timing of new product introduction (Schoonhoven et al., 1990), and on performance (West and Noel, 2009). In addition, industry experience can positively affect venture performance and reduce the likelihood of the entrepreneur's exit from the business (Gimeno et al., 1997). Similarly, industry-specific experience can decrease the likelihood of firm dissolution, although its effect can ultimately follow a U-shaped pattern (Pennings et al., 1998).

Similar to entrepreneurial experience, industry experience can provide valuable skills for the successful implementation of the nascent entrepreneur's current venturing efforts, but cannot ensure that the opportunity will ultimately turn out to be promising. On the one hand, industry experience provides more profound knowledge of the value chain in which the venture will engage and thus better understanding of the key stakeholders involved in the start-up process as well as of ways to approach them (Cooper et al., 1994). In many cases, the nascent entrepreneur may already have established relationships with critical stakeholders, such as potential customers, suppliers, or other resource providers, and thus be in an advantageous position to capitalize on these relationships in the current venturing effort (Kor et al., 2007; Shane and Venkataraman, 2000). In addition, industry insiders are likely to be privy to important sources of information – such as pricing, cost structure, market share, revenue, and cost trends – that are generally inaccessible to external observers. These can allow the nascent entrepreneur to make better decisions and become more effective in reaching specific venturing milestones. Therefore, the tacit, contextual knowledge provided by prior industry experience represents a valuable resource for guiding the nascent entrepreneur's efforts towards venture emergence.

Hypothesis 3a: There is a positive relationship between the nascent entrepreneur's industry experience and venture emergence.

But on the other hand, the same considerations made for entrepreneurial experience are equally applicable here. A judgment by the nascent entrepreneurs that the merits of the opportunity are deficient or unattractive can suppress the benefits of their industry experience. Industry experience can make the nascent entrepreneur better equipped to perceive and evaluate opportunities within the industry (Ronstadt, 1988). In the context of their current venturing efforts and incoming information about the opportunity at hand, such perceptiveness enables them to make better judgments about the feasibility of the opportunity and their ability to successfully exploit it. Therefore, the relationship between industry experience and venture emergence can also be indirect. To the extent that industry experience can make nascent entrepreneurs better attuned to the opportunity at hand, their opportunity confidence can both increase and decrease, with, respectively, different consequences for the emergent venture.

Hypothesis 3b: The nascent entrepreneur's opportunity confidence mediates the relationship between industry experience and venture emergence.

Early Planning and Venture Emergence

Planning pertains to the development of a sequence of behaviours used to translate an individual's resources into actions aimed at achieving particular goals (Shank and Abelson, 1977). Some of the particular benefits of planning include the identification and anticipation of potential obstacles, and the mental simulation and understanding of possible positive and negative scenarios (Hoc, 1988). Research has shown that decision-making accuracy is improved when subjects are asked to consider the specific pros and cons of each option (e.g. Koriat et al., 1980). In other words, the process of planning allows individuals to better understand their choices. In addition to such *intellectual* benefits, planning also bestows *volitional* benefits, such as increased focus, lower susceptibility to distraction, higher persistence, and readiness to act (Gollwitzer, 1996), as well as increased goal commitment (Tubbs and Ekeberg, 1991). They can occur in a wide range of tasks (Diefendorff and Lord, 2003).

Planning is particularly important when tasks are complex and uncertain (Campbell, 1988), such as those faced by nascent entrepreneurs. Beyond what nascent entrepreneurs know and can do, the actual outcomes they achieve in their venturing efforts can also depend on the thoughtfulness and planning they put into their actions. Although this is a very intuitive premise, the empirical relationship between planning and venture outcomes has been mixed and relatively unexplored. Although there is evidence that business planning increases the persistence and survival of nascent organizations (Honig and Karlsson, 2004; Liao and Gartner, 2006) and reduces new venture termination (Delmar and Shane, 2003), there is also evidence that business planning has no effect on the successful emergence of a venture (van Gelderen et al., 2005) and that it makes no difference for the success of the venture (Lange et al., 2007). In view of these findings, two theoretical elaborations can be made of the relationship between planning and venture emergence. First, it is useful to distinguish between informal, early planning and formal, later-stage planning. Second, although early planning can make the nascent entrepreneur more effective, it can not necessarily ensure the operability of the current venturing

efforts. In this regard, the effect of early (or pre-start-up) planning on venture emergence can be direct as well as indirect, through facilitating the nascent entrepreneur's learning about the proposed business (Castrogiovanni, 1996).

Early planning efforts can serve as an internal roadmap for the venturing efforts. They can be particularly beneficial under high environmental uncertainty (Liao and Gartner, 2006) as they can improve decision making and facilitate resource management. Specifically, nascent entrepreneurs who engage in planning are able to identify critical missing information, anticipate and rehearse various contingencies, and thus make faster decisions (Delmar and Shane, 2003). Early planning enables them to set more proximate objectives, against which to judge progress and undertake corrective actions – if such actions are possible or feasible – in a timely manner. In addition, early planning allows nascent entrepreneurs to identify critical success factors and thus increases their sensitivity to signals of potential problems. It also helps them allocate their personal resources more efficiently, by outlining the critical tasks that require more and timely attention (Tripoli, 1998). Finally, in the context of resource constraints, early considerations of financial requirements can enable the nascent entrepreneur to anticipate funding needs and take preventive measures well before shortfalls jeopardize the start-up effort.

Early planning can also instil discipline, persistence, and goal commitment. It can facilitate the communication of goals to others (Locke and Latham, 1990) and thus boost the nascent venture's legitimacy in the eyes of relevant external stakeholders (Delmar and Shane, 2004), and mitigate its liability of newness (Stinchcombe, 1965). Specifically, it can help the nascent entrepreneur develop internally-consistent stories (Aldrich and Ruef, 2006; Lounsbury and Glynn, 2001) that can facilitate interaction with potential stakeholders in the business and access to external funding (Honig and Karlsson, 2004; Low and Abrahamson, 1997). Overall, these intellectual, volitional, and social benefits of early planning can prove instrumental for guiding the nascent entrepreneur's efforts towards venture emergence.

Hypothesis 4a: There is a positive relationship between the nascent entrepreneur's early planning and venture emergence.

But equally, by helping the nascent entrepreneur learn more about the venture opportunity (Castrogiovanni, 1996), the effects of early planning can be ultimately embodied in the nascent entrepreneur's judgment on the merits and attractiveness of the opportunity. Through early planning, nascent entrepreneurs can identify the critical junctions in the start-up process and more effectively verify some of their critical business assumptions. This will enable them to judge more accurately the feasibility of the opportunity and whether they possess the proper knowledge and skills to successfully exploit it. Therefore, to the extent that the outcomes of early planning can increase or decrease the nascent entrepreneur's opportunity confidence, it can also indirectly boost or deflate the current venturing effort.

Hypothesis 4b: The nascent entrepreneur's opportunity confidence mediates the relationship between early planning and venture emergence.

METHOD

Data

The data for testing the presented hypotheses came from the US Panel Study of Entrepreneurial Dynamics (PSED), 'the first large-scale national database to offer systematic, reliable, and generalizable data on the process of business formation' (Gartner and Carter, 2003, p. 215). The PSED is a detailed longitudinal survey of 830 nascent entrepreneurs identified while in the process of starting new businesses and has been used in a number of other studies (see Davidsson, 2006; Reynolds and Curtin, 2008, for comprehensive reviews). As the PSED research design, data collection procedures, and overview statistics are described in great detail in Reynolds (2000), Reynolds and Curtin (2008) and Shaver et al. (2001), I only provide a brief overview of the dataset.

The PSED was initiated by phone screening of a large population sample to identify eligible nascent entrepreneurs. This initial screening took place between July 1998 and January 2000. A random sample of 64,222 adults in the USA was screened for whether they were involved in starting their own businesses. Eligible nascent entrepreneurs were identified based on two criteria. The first involved a positive answer to at least one of the following questions: 'Are you, alone or with others, now trying to start a new business?' and 'Are you, alone or with others, now trying to start a new business or a new venture for your employer? An effort that is part of your job assignment'. The second criterion involved positive answers to two further questions: 'Will you own all, part, or none of this new business?' and 'In the past 12 months, have you done anything to help start this new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activity that would help launch a new business?'

Based on these criteria, 3,592 nascent entrepreneurs were identified, of whom 2,763 (77 per cent) were involved in starting their own businesses, 349 (10 per cent) were involved in starting businesses for their employers, and 480 (13 per cent) were involved in both. A total of 3,087 (86 per cent) of these eligible respondents volunteered to participate in detailed interviews. Based on cost and population considerations, approximately two-thirds of them were selected for detailed data collection, consisting of detailed phone interview and mail questionnaire. The first wave of data collection took place right after the initial screening. At the phone interview, start-up efforts that had positive monthly cash flows that covered expenses and salaries for the owner/managers for more than three months were considered infant businesses and dropped from further consideration. These constituted approximately 27 per cent of the cases selected for the interview. Further attrition among the selected respondents occurred through loss of contact (approximately 7 per cent of attempted eligible contacts) and non-completion of the phone interview (approximately 20 per cent of the attempted eligible contacts). A total of 830 nascent entrepreneurs completed the detailed phone interview and 562 of these (68 per cent) also completed a detailed mail questionnaire. Three additional waves of data collection (phone interview and mail questionnaire) took place, respectively, 14, 27, and 40 months after Wave 1. In the Wave 2 phone interview, 615 of the 830 nascent entrepreneurs (74 per cent) provided an update on the status of their start-up efforts.

A representative sample of nascent entrepreneurs is necessarily heterogeneous (Davidsson, 2006). In order to decrease unobserved heterogeneity and ensure sufficient internal validity for testing the relationship between the nascent entrepreneur's characteristics and venture emergence, I selected for analysis only nascent entrepreneurs who were acting alone, i.e. were involved in an independent, 'solo' effort (Wennberg et al., 2009). The reason for this choice was that for cases where more than one person was involved in starting a particular business, it would have been more difficult and complex to capture the judgments and experience of the team and to make attributions about the success or failure of the emerging venture. A total of 391 of the 830 nascent entrepreneurs in Wave 1 were starting their businesses alone; 281 of these completed the mail questionnaire, while 285 completed the Wave 2 phone interview, resulting in 206 usable observations with non-missing data. A detailed examination revealed that the overall composition of missing cases from the two phone interviews and the mail questionnaire was random and thus did not affect the inferences drawn from the analyses.^[2] In addition, there was no difference in the industry distribution of the selected cases from the entire sample of nascent entrepreneurs ($\chi^2 = 9.1$ (8 df), $p > 0.33$).

Dependent Variable

Although the ultimate fate of the venturing efforts is binary in nature (i.e. the venture either does or does not become established), observing venturing efforts before their ultimate realization creates a problem of right censoring. A venture that is not yet established at the time of observation may become so afterwards. This issue is particularly relevant when there is a threshold associated with the emergence 'event' (Lichtenstein et al., 2006) and when there is diversity of pace in the nascent entrepreneurial process (Lichtenstein et al., 2007). In line with the theoretical discussion of venture emergence, one way of mitigating the impact of right censoring is to distinguish gradations of venture emergence. To do this, I measured venture emergence based on data from the Wave 2 interview that identified the status of the start-up effort as an operating business (coded as 4), still active (coded as 3), inactive (coded as 2), or no longer worked on (coded as 1). This variable captures different points on a continuum of venture emergence, with higher values representing closer proximity to the ultimate successful establishment of the venture. The validity of this coding is discussed in Appendix I.

In 23 cases the nascent entrepreneur indicated that he or she was no longer involved in the start-up effort but the status of the effort was reported as operating business (5 cases), still active (6 cases), or inactive (12 cases). Of the inactive cases, 75 per cent were eventually reported as discontinued; the remainder were still inactive. I therefore coded these cases as discontinued (code 1).^[3] The other 11 cases, given the non-involvement by the focal nascent entrepreneur, were dropped from the analysis, reducing the usable cases to 195.

I used the available information on the status of the business in Waves 3 and 4 to create an alternative dependent variable that, although more remote in time, can help establish the robustness of the results. Five additional cases were reported as no-longer-involved in Waves 3 and 4, and these were dropped from the analysis using this alternative dependent variable.

Independent Variables

Opportunity confidence. In line with its formative nature, opportunity confidence was measured as the average of the nascent entrepreneur's opportunity feasibility belief and start-up self-efficacy, as measured in Wave 1. I measured opportunity feasibility belief as the average of two indicators. The first consisted of an 11-item scale ($\alpha = 0.82$), as shown in Appendix II, which assesses the nascent entrepreneur's certitude that the business will achieve particular milestones, such as attracting customers, competing with other funds, or obtaining various resources. The second indicator represented the nascent entrepreneur's overall assessment of the chance of success, based on the question 'On a scale of zero to one hundred, what is the likelihood that this business will be operating five years from now, regardless of who owns and operates the firm?' (Q325),^[4] as asked in the phone interview. To accommodate the skewed distribution of the responses, the reported values were logged. I measured start-up self-efficacy using a six-item scale ($\alpha = 0.77$), as shown in Appendix II, which assesses the nascent entrepreneurs' beliefs that they can successfully complete the current start-up effort.

In supplementary analyses, not reported here due to space limitations but available upon request, I corroborated the results reported below using alternative derivations of opportunity confidence, based on weights derived from maximum likelihood factor analysis and on the overall averaging of the three individual measures. In addition, to validate the formative nature of the opportunity confidence construct, I re-estimated all models using the separate variables for opportunity feasibility belief and start-up self-efficacy. The individual effects of these variables were fully consistent with the overall effects of opportunity confidence reported below. This suggests that through their relationships with human capital, early planning, and venture emergence, these two variables share a common, unifying feature based on which they can be properly grouped and more succinctly represented by the concept of opportunity confidence.

Entrepreneurial experience. The nascent entrepreneurs' prior entrepreneurial experience was measured by the number of their previous start-up efforts, based on the question 'How many other businesses have you helped start?' (Q200), as asked in the Wave 1 phone interview. Given the skewed distribution of this variable, its logged values were used in the analyses. This specification reflected a diminishing contribution of each additional start-up involvement to the human capital of the nascent entrepreneur. Although the wording of the question allows for the inclusion of cases in which the individual was not the principal of the business, one can argue that even such subordinate experience can provide first-hand insight of the start-up process and is thus relevant for this representation of human capital.

Industry experience. The nascent entrepreneurs' industry experience was measured by the number of years spent working in the current industry, based on the question 'How many years of work experience have you had in this industry – the one where the new business will compete?' (Q199), as asked in the Wave 1 phone interview. Again, I used the logged values of these responses in the analyses in order to accommodate their

skewed distribution and reflect the diminishing contribution of each additional year of experience to the human capital of the nascent entrepreneur.

Early planning. I measured early planning as the sum of three indicators that established whether, by the time of the Wave 1 phone interview, the nascent entrepreneur: (1) had prepared a business plan (Q111); (2) had made an effort to define the market opportunities by talking with potential customers or getting information about the competition (Q134); and (3) had developed projected financial statements (Q137). Consistent with the notion of early planning, each of these activities prompts the nascent entrepreneur to think about the markets to be served, products to be provided, and the required resources; and obtain information, make assumptions, and research various aspects of the opportunity at hand, such as competition, market potential, and revenue and cost drivers. The business roadmap that emerges from these activities can inform specific actions and then be reconciled with the actual outcomes of these actions to derive updated assumptions and decision alternatives. Just over half (50.5 per cent) of the nascent entrepreneurs reported completing a business plan and of these, consistent with the notion of early planning as an informal, flexible process, 72 per cent reported the business plan to be unwritten or informally written. Collectively, these indicators reflected the extent to which the nascent entrepreneur had engaged in early planning.

Control Variables

I used an extensive set of control variables in order to rule out alternative explanations of venture emergence. Because career experience may vary with age and by gender, I controlled for the respondent's age (NCAGE) and gender (NCGENDER, coded 0 for male and 1 for female). To account for the respondent's general human capital, I controlled for their total years of work experience (Q340, logged) and education (USEDUC5), which was coded using a five-point scale, ranging from 'no high school degree' to 'post college experience'.

Next, considering that the nascent entrepreneurs' persistence may reflect their motivation to start a business, I controlled for their general self-efficacy beliefs and start-up motivation. The former was measured with a three-item scale ($\alpha = 0.89$), reflecting the nascent entrepreneur's general belief in their ability to complete new tasks, achieve goals, and overcome obstacles. I measured start-up motivation using a three-item scale ($\alpha = 0.73$), reflecting the strength of each respondent's commitment to establish their own business. Both scales are shown in Appendix II.

Finally, to account for the fact that at the time of the data collection each nascent venture was at a different stage of development, I controlled for the number of achieved milestones and the time (in years) elapsed between the very first nascent entrepreneurial activity and the Wave 1 phone interview. The count of achieved milestones, ranging from zero to nine, was based on whether the nascent entrepreneur had engaged in marketing efforts (Q122), purchased supplies (Q128), purchased or leased equipment (Q131), invested their own money (Q143), engaged in fundraising efforts (Q145), obtained credit from suppliers (Q149), devoted full time to the business (Q153), hired employees (Q155), and received revenue (Q162).

RESULTS

The descriptive statistics for the variables used in the analyses are shown in Table I. Given the ordinal nature of the venture emergence variable and the associated estimation challenges,^[5] I used an ordered logit model, which is better suited for ordinal variables. In this model, venture emergence is represented as a linear function of the independent and control variables and a set of cut-off points that characterize the transition from one status level to the next. Thus, the probability of observing a status level (j) by a nascent entrepreneur (i) corresponds to the probability that the estimated linear function plus the error term falls within the respective range marked by the estimated cut-off points. Formally,

$$\text{Prob}(\text{status}_i = j) = \text{Prob}(k_{j-1} < \mathbf{B}_i \mathbf{X}_i + u_i \leq k_j),$$

where \mathbf{B}_i and \mathbf{X}_i represent the vectors of estimated coefficients and predictor variables, u_i is the random error assumed to be logistically distributed, j belongs to the set of status levels (no longer worked on, inactive start-up, active start-up, operating business), and k_j and k_{j-1} represent the cut-off points for status (j) and the preceding, inferior outcome ($j - 1$).

The results from the ordered logit estimation were used to test the main effect hypotheses (1, 2a, 3a, 4a) and are presented in Table II. I entered the variable in three steps: Model 1 includes the control variables; Model 2 adds the effects of entrepreneurial experience, industry experience, and early planning; and Model 3 adds the effect of opportunity confidence. Model 2 offers a marginal improvement in fit over the base model, while Model 3 makes significant fit improvements over Model 2.

Hypothesis 1 predicted a positive relationship between opportunity confidence and venture emergence. The coefficient for opportunity confidence in Model 3 was positive and significant ($\beta = 0.91$, $p < 0.001$). This suggests that for nascent entrepreneurs with higher opportunity confidence the venturing efforts would be more likely to advance. This result provides support for Hypothesis 1. In regard to the human capital variables, Hypothesis 2a predicted a positive relationship between entrepreneurial experience and venture emergence. The coefficient for entrepreneurial experience was not significant in any of the models, thereby providing no support for this hypothesis. Hypothesis 3a predicted a positive relationship between industry experience and venture emergence. The coefficient for industry experience was positive and significant in both Models 2 and 3 (e.g. $\beta = 0.37$, $p < 0.01$ in Model 3). For a nascent entrepreneur with no industry experience, one year of experience would increase the probability of reaching operating status from 12 to 15 per cent. These results provide support for Hypothesis 3a. Finally, in regard to early planning, Hypothesis 4a predicted a positive relationship with venture emergence. The coefficients for early planning were not significant in any of the models, thereby providing no support for this hypothesis.

As robustness checks and to further elucidate the above results, I conducted two additional analyses. In the first, I re-estimated Model 3 using the alternative measure of venture emergence, in which the status of the venturing effort was updated with

Table I. Descriptive statistics and correlations^a

<i>Variable</i>	<i>Mean</i>	<i>S.D.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
1 Opportunity confidence	0.00	0.80	1.00										
2 Entrepreneurial experience	0.55	0.64	0.15	1.00									
3 Industry experience	1.73	1.26	0.03	0.19	1.00								
4 Early planning	1.69	0.90	0.17	0.07	-0.01	1.00							
5 Age	40.83	11.05	0.01	0.17	0.31	-0.03	1.00						
6 Gender	1.60	0.49	0.10	-0.02	0.03	0.00	0.07	1.00					
7 Work experience	2.75	0.72	0.16	0.20	0.35	0.04	0.67	-0.02	1.00				
8 Education	3.26	1.14	-0.08	0.24	0.13	0.08	0.17	0.16	0.17	1.00			
9 General self-efficacy	4.21	0.81	0.30	-0.01	0.12	0.05	0.01	0.07	0.11	0.10	1.00		
10 Start-up motivation	3.87	0.80	0.42	0.06	0.24	-0.04	0.11	0.10	0.20	0.02	0.07	1.00	
11 Number of achieved milestones	4.17	1.90	-0.05	0.08	0.15	0.33	0.10	0.03	0.14	0.04	0.01	0.00	1.00
12 Length of involvement (years)	3.55	6.05	-0.04	-0.08	0.25	0.02	0.26	-0.11	0.07	0.03	-0.07	0.12	0.11

Notes: ^a n = 195. All correlations with absolute value greater than 0.135 are significant at p < 0.05.

Venture emergence is an ordinal variable with the following values: 'no longer worked on' (24.1%), 'inactive start-up' (16.4%), 'active start-up' (33.9%), and 'operating business' (25.6%).

Table II. Ordinal and multinomial logit estimation of venture emergence

Predictor (Wave 1)	Ordered logit						Multinomial logit												
	Likelihood of venture emergence based on reported status in:						Wave 2 relative likelihood of reaching:												
	Wave 2		Waves 3 and 4		Operating business		No longer worked on		Operating business		Model 6								
Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6		
Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Opportunity confidence						0.913***	(0.24)	0.781**	(0.26)	-0.660†	(0.34)	1.101**	(0.41)						
Entrepreneurial experience						-0.268	(0.24)	-0.289	(0.25)	0.507	(0.37)	-0.144	(0.33)						
Industry experience						0.304*	(0.12)	0.402**	(0.14)	-0.534**	(0.20)	0.013	(0.20)						
Early planning						0.086	(0.16)	-0.021	(0.18)	-0.160	(0.26)	-0.271	(0.25)						
Age	0.000	(0.02)	0.002	(0.02)	0.006	(0.02)	0.007	(0.02)	0.007	(0.02)	0.020	(0.03)	0.042	(0.03)					
Gender	-0.045	(0.28)	-0.121	(0.29)	-0.215	(0.30)	-0.212	(0.32)	-0.212	(0.32)	-0.080	(0.46)	-0.683	(0.45)					
Work experience	0.144	(0.26)	-0.002	(0.27)	-0.114	(0.27)	-0.030	(0.31)	-0.030	(0.31)	-0.205	(0.46)	-0.449	(0.47)					
Education	0.105	(0.12)	0.091	(0.12)	0.202	(0.13)	0.156	(0.14)	0.156	(0.14)	-0.107	(0.21)	0.212	(0.19)					
General self-efficacy	0.104	(0.16)	0.062	(0.17)	-0.144	(0.18)	-0.087	(0.18)	-0.087	(0.18)	0.432	(0.28)	0.229	(0.30)					
Start-up motivation	0.112	(0.17)	0.056	(0.17)	-0.330†	(0.20)	-0.213	(0.22)	-0.213	(0.22)	0.306	(0.31)	-0.394	(0.31)					
Number of achieved milestones	0.471***	(0.08)	0.442***	(0.08)	0.517***	(0.09)	0.412***	(0.09)	0.412***	(0.09)	-0.430**	(0.14)	0.486***	(0.13)					
Length of involvement (years)	-0.026	(0.03)	-0.039	(0.03)	-0.045†	(0.03)	-0.018	(0.03)	-0.018	(0.03)	0.038	(0.04)	-0.041	(0.04)					
Threshold for 'inactive start-up'	2.042		1.591		-0.671		1.005		1.005										
Threshold for 'active start-up'	2.926		2.502		0.289		1.457		1.457										
Threshold for 'operating business'	4.634		4.258		2.140		2.018		2.018										
Constant																			
LL	-242.7		-239.6		-231.3		-202.6		-202.6		-0.834		-1.554						
χ ²	43.04***		49.28***		65.90***		46.9***		46.9***		-216.7		95.08***						
Δχ ²			6.2†		16.6***														
n	195		195		195		190		190		195		195						

Notes: † p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001.

information from Waves 3 and 4. The results of this estimation are shown as Model 4 in Table I and are fully consistent with those reported above. In the second analysis, I re-estimated Model 3 using a multinomial logit model with ‘active start-up’ as the baseline category, based on the reported status in Wave 2. In the rightmost part of Table II (Models 5 and 6), I report the relative likelihood of reaching ‘no longer worked on’ and ‘operating business’ status. Notably, opportunity confidence both reduces the likelihood of discontinuation ($\beta = -0.66$, $p < 0.10$) and increases the likelihood of becoming operating business ($\beta = 1.10$, $p < 0.01$). In contrast, industry experience reduces the likelihood of discontinuation ($\beta = -0.53$, $p < 0.01$), but has no effect on the likelihood of becoming operating business. Consistent with the earlier results, entrepreneurial experience and early planning affect neither.

In respect to the indirect effects, Hypotheses 2b, 3b, and 4b suggest that opportunity confidence mediates the effects of entrepreneurial experience, industry experience, and early planning on venture emergence. To infer mediation, it is necessary to establish that: (1) the mediated variable is correlated with the mediator; (2) the mediator is correlated with the dependent variable; and (3) the effect of the mediated variable in the presence of the mediator is zero or reduced (Baron and Kenney, 1986). The analyses in Table II confirm conditions (2) and (3) for entrepreneurial experience and early planning but rule out mediation of industry experience (thereby providing no support for Hypothesis 3b). To examine condition (1) for entrepreneurial experience and early planning, I used OLS regression to estimate their effects on opportunity confidence.

The results of the OLS estimation are shown in Table III. The effects of entrepreneurial experience and early planning on opportunity confidence are positive and sig-

Table III. OLS estimation of opportunity confidence

<i>Variable</i>	<i>Opportunity confidence</i>			
	<i>Coef.</i>	<i>S.E.</i>	<i>Coef.</i>	<i>S.E.</i>
Entrepreneurial experience			0.222**	(0.08)
Industry experience			-0.073†	(0.04)
Early planning			0.182**	(0.06)
Age	-0.009	(0.01)	-0.008	(0.01)
Gender	0.125	(0.10)	0.154	(0.10)
Work experience	0.189†	(0.10)	0.187*	(0.09)
Education	-0.091*	(0.04)	-0.124**	(0.04)
General self-efficacy	0.263***	(0.06)	0.274***	(0.06)
Start-up motivation	0.375***	(0.06)	0.392***	(0.06)
Number of achieved milestones	-0.024	(0.03)	-0.053†	(0.03)
Length of involvement (years)	-0.004	(0.01)	0.002	(0.01)
Constant	-2.499***	(0.41)	-2.783***	(0.40)
R ²	0.288***		0.363	
ΔR ²			0.075***	
n	195		195	

Notes: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

nificant, thereby suggesting that mediation condition (1) is also met for these variables. In order to test the significance of the mediation effects, I conducted Sobel tests, adjusting the coefficients to take into consideration that logistic regression estimates the coefficients on different scales across equations (MacKinnon and Dwyer, 1993). The test statistics indicate that the mediating effect of opportunity confidence on venture emergence is significant for both entrepreneurial experience (z -value 2.26, $p < 0.05$) and early planning (z -value 2.46, $p < 0.05$). These results support Hypotheses 4a and 4c. Given that the direct effects of entrepreneurial experience and early planning on venture emergence were not significant, such relationships are referred to as inconsistent mediation (MacKinnon et al., 2007).^[6] It is consistent with the presented arguments that entrepreneurial experience and early planning can help the nascent entrepreneur judge the value of the opportunity, but it is that judgment that in turn determines venture emergence.

DISCUSSION

Three stylized descriptions can apply to nascent entrepreneurs: they pursue opportunities; these opportunities are uncertain; and not all of these pursuits result in operating businesses. Retrospectively, nascent entrepreneurial failure can be easily attributed to naïvely pursuing an unfeasible or inoperable opportunity. But prospectively, before the merits of the opportunity are fully known, no nascent entrepreneur can be objectively called naïve; abandoning the venturing efforts can easily usher counterfactual contemplation. Whether to proceed is a matter of judgment, a re-evaluation of the opportunity in the light of the latest actions and configurations of circumstances.

This paper aims to articulate this judgment and situate it in the process of venture emergence. It introduces opportunity confidence as a conceptual umbrella for the evolving conviction by the nascent entrepreneurs that the opportunity at hand is feasible and that they will be able to establish a venture that exploits it. As the presented arguments and analyses suggest, opportunity confidence provides an important link between the human capital and early planning actions of the nascent entrepreneurs and venture emergence. Specifically, opportunity confidence not only positively affects venture emergence but also mediates the effects of entrepreneurial experience and early planning on venture emergence. And while neither entrepreneurial experience nor early planning directly affect venture emergence, industry experience affects venture emergence positively. These results provide some novel insights into the nascent entrepreneurial process as well as into the roles of human capital and planning in that process.

The main contribution of this work concerns the central, intervening role that opportunity confidence plays in the nascent entrepreneurial process. It is an emerging, evolving judgment that reflects the nascent entrepreneurs' updated beliefs regarding the opportunity at hand and thus constitutes a gateway to the unfolding of the venturing efforts. Nascent entrepreneurs with sufficient conviction of the merits of the pursued opportunity can feel compelled to persist in their venturing efforts towards venture emergence. But importantly, their equally skilled counterparts who lose confidence in the opportunity may choose to abandon it. Both results represent efficient realizations of the entrepreneurial process. In this sense, opportunity confidence acts as a gauge for the resolved uncertainty about the opportunity, based on the accumulation of positive and negative

signals about its potential. Initial assumptions and intuition are gradually replaced with experiential facts and juxtaposition of circumstances that can send the gauge in either direction.

The explicit articulation of opportunity confidence brings to the fore the endogenous and uncertain nature of entrepreneurial opportunities and thus offers important implications for entrepreneurship research in regard to assessing the effects of certain factors on nascent entrepreneurial outcomes such as new venture emergence. In a typical research design, variation in the outcome is associated with variation in the explanatory factor of interest. But to the extent that the outcome is linked to the revelation of the quality of the underlying opportunity and this revelation is also related to the factor of interest, then empirical associations (or lack thereof) can be misleading. Resolving the uncertainty surrounding the perceived opportunity requires active engagement with relevant stakeholders, asking critical questions, applying analytical frameworks, and gathering relevant information. Therefore, any factor or element of expertise that enables the nascent entrepreneur to undertake these actions and make a more informed judgment about whether to continue with the venturing effort can appear to have a negative effect on venture emergence when that judgment is negative. In this regard, theoretical and empirical advances need to be made in terms of recognizing 'properly' discontinued venturing efforts and modelling such outcomes as positive. Such work can relate to and build upon recent discussions of the nature of termination decisions in corporate innovation projects and their learning implications for future entrepreneurial efforts (Corbett et al., 2007). In addition, it may be appropriate to discern 'foolish' and 'rational' aspects of opportunity confidence, with the former leading to 'bad' persistence or escalation of commitment (e.g. McCarthy et al., 1993).

The relevance of recognizing the positive aspects of discontinuation can be readily seen in the context of the relationship between opportunity confidence and the nascent entrepreneur's human capital and early planning activities, as examined in this study. With its focus on human capital, this paper continues a long research tradition of examining the effect of human capital on various entrepreneurial outcomes. I focused on two aspects of human capital specific to the venturing effort, namely prior entrepreneurial experience and industry experience. They provide valuable knowledge of the venturing process and of the specific venture context (customers, suppliers, and other stakeholders). And, as the results suggest, they play different roles in the nascent entrepreneurial process. Therefore, going forward, the study of human capital requires a more differentiated conception and greater measurement consistency across studies.

I found that entrepreneurial experience had no direct effect on venture emergence, but it had an indirect effect, through the nascent entrepreneur's opportunity confidence. Such experience can be valuable for (quickly and properly) understanding the merits of the opportunity but, beyond that, venture emergence depends on these merits. The lack of direct effect is consistent with a previous study of nascent entrepreneurs that found that previous start-up experience was associated with more gestation activities but did not affect the successful establishment of a business (Davidsson and Honig, 2003). Interestingly, performing more gestation activities can be seen as learning about the venture opportunity.

While initially surprising – based on the intuitive arguments offered from a human capital perspective – this lack of direct effect prompts consideration of the opportunity costs that nascent entrepreneurs face in deciding whether to continue their venturing efforts, and particularly the determination of these costs by the nascent entrepreneur's human capital (Amit et al., 1995; Cassar, 2006; Gimeno et al., 1997). Nascent entrepreneurs can possess expertise and skills that open alternative choices of employment or venturing activities and create substantial opportunity costs that in turn raise the performance threshold of the current venturing efforts (Gimeno et al., 1997). Those with prior entrepreneurial experience may have other viable venturing alternatives and thus evaluate the viability and promise of the currently pursued opportunity through more stringent lenses. It is therefore plausible that in pursuing opportunities with uncertain prospects, they weigh the emerging promise of the opportunity against such alternative career possibilities. Thus, nascent entrepreneurs with greater entrepreneurial experience can be expected to discontinue early their efforts on lacklustre opportunities in pursuit of other, more appealing alternatives, as well as to remain committed and effective in pursuing those opportunities that remain attractive.

The second aspect of human capital, industry experience, had a direct, positive effect on venture emergence. Nascent entrepreneurs with greater industry experience were more likely to persist with their venturing efforts even though, as the analysis revealed, this would not necessarily lead to venture emergence (Table III, Model 6). I attribute this to two underlying forces. First, industry experience is narrower and more entrenched in its scope of application and thus has more subdued opportunity costs for the nascent entrepreneur. It makes the discovery and evaluation of opportunities outside the industry more burdensome, thereby enhancing the nascent entrepreneur's commitment to the current industry (Gimeno et al., 1997). This view is consistent with the notion of craftsmen entrepreneurs (Smith, 1967). Second, the information and relationship advantage that nascent entrepreneurs with greater industry experience have may enable them to modify or refine the current opportunity in ways that enhance its feasibility and operability. While prior evidence for the benefits of industry experience for venture emergence is mixed and tenuous (Samuelsson and Davidsson, 2009; Wagner, 2005), the contextual knowledge associated with industry experience can make nascent entrepreneurs better positioned to (slowly) adapt the opportunity to a feasible, operable state, consistent with its benefits for newly established businesses (Bosma et al., 2004; Bruderl et al., 1992).

The paper's final contribution is to elaborate on the role of early planning in the nascent entrepreneurial process. Notably, and despite expectations for a direct association, its contribution to venture emergence was only indirect, through the nascent entrepreneur's opportunity confidence. Although early planning allows the nascent entrepreneur to comprehend and perhaps nourish the opportunity at hand, it cannot really control its ultimate operability. In this sense, early planning is but a learning tool for nascent entrepreneurs (Castrogiovanni, 1996). It can facilitate the reception of early warning signals that allows them to more quickly and efficiently discover critical flaws in their venturing pursuits or to realize that their personal skills are ill suited for these tasks. In such cases, their opportunity confidence is undermined and they can reasonably discontinue the venturing efforts and limit their losses (if any). Therefore, early planning

is beneficial insofar as it guides nascent entrepreneurs away from opportunities that lack promise and towards those with higher potential. Consistent with this view, highly ambitious entrepreneurs may be more likely to discontinue their venturing efforts after more extensive planning (van Gelderen et al., 2005). Once the new venture is established and its direction is less ambiguous, formal planning can have a more pronounced effect on its survival (Delmar and Shane, 2003; Honig and Karlsson, 2004).

There are limitations to the study that require careful consideration before generalizing the results to broader populations and that may offer additional directions for future research. First, in the interest of internal validity, I focused on nascent entrepreneurs acting alone. In cases where more than one entrepreneur is involved, the highlighted relationships may be more complex once the dynamics of the start-up team are taken into consideration. Second, although I controlled for the number of milestones achieved by the nascent entrepreneurs, there may be unaccounted heterogeneity associated with their social network, particularly their access to strategic partners, expertise, and legitimacy endorsements. Incorporating these factors in the current framework can further expand our knowledge of venture emergence. Finally, future research should assess formal measurement models of opportunity confidence and develop measures that are better adapted for the various stages of venture emergence. It could aim to utilize more factual measures of venture emergence, such as whether the business actually recuperates its start-up costs.

CONCLUSIONS

In conclusion, the transition from *emerging* to *established* ventures provides a rich context for developing and testing entrepreneurship theories. Historically, much of the focus in this process has been on the characteristics and actions of the entrepreneurs that enable this transition, without accounting for the inherently uncertain nature of the pursued opportunity. But even the most skilled and knowledgeable individuals can run after 'bad' ideas; it is just that they may be able to realize the futility of their efforts more quickly and efficiently. Arguably, every idea deserves a chance when first articulated and this is what makes entrepreneurship both exciting and difficult to manage as a rational decision process. That many ideas would ultimately fail should be considered an instrumental feature of the process. As A. G. Lafley, the CEO of Proctor & Gamble, said in a recent interview with *BusinessWeek*, 'the key is to fail early, fail cheaply, and don't make the same mistake twice' (*BusinessWeek*, 2009). The challenge for entrepreneurship scholar is to recognize both the successes and the well intentioned failures.

This challenge occupies our thoughts as the plane takes off for the return trip. We look out of the window and realize that the emerging ventures continue to hold our fascination, but having seen the underground process, we have grown equally fascinated by the ships that have been safely abandoned without recklessly crashing in the crust above. An analogy from statistics creeps in: perhaps ventures that are established when the opportunity is promising can be considered Type I success and those that are abandoned when the opportunity is lacklustre can be considered Type II success. These notions can spur a new conversation about the nature of the dependent variable in entrepreneurship research. While it will certainly not be easily or smoothly carried forward, it will at least

make our explanatory attributions less susceptible to fortuitous developments, which inevitably occurs when we simply compare ventures that have emerged above ground with those which have remained below.

ACKNOWLEDGMENTS

The author thanks the editor, Andrew Corbett, and three anonymous reviewers for their constructive feedback and suggestions. He also thanks Amanda Harris for her assistance in preparing earlier versions of the manuscripts as well as Johan Wiklund and Jeffery McMullen for their insightful feedback.

NOTES

- [1] For ease of treatise, I refer to the nascent entrepreneur as individual, but acknowledge that the venturing efforts can involve a team of individuals.
- [2] I conducted formal tests for selection bias as follows. First, the composition of the main sample of 830 nascent entrepreneurs was based on three points of self-selection: (1) volunteering to participate in the data collection after the screening stage; (2) completing the detailed phone interview; and (3) completing the mail questionnaire. I estimated sample selection corrections based on the hazard of non-occurrence of self-selection given that an individual belongs to the appropriate risk set (Berk, 1983; Heckman, 1979). I estimated these corrections for each of the specified selection stages and did so sequentially. Second, I used the selection correction from the latest stage (mail questionnaire) to estimate the probability of non-response to the follow-up phone interview among the solo nascent entrepreneurs. The effect of the selection correction was not significant ($p > 0.74$); the overall model itself was not significant ($\chi^2 = 22.5$, $p > 0.12$); and including a non-response correction in the analyses did not produce a significant effect ($p > 0.52$). This suggests that there was no evidence for selection bias. The results of these analyses are available upon request.
- [3] I note that dropping these cases entirely did not change the reported results.
- [4] For ease of reference in the PSED dataset, I provide the names of the respective variables in the dataset.
- [5] The different values for venture emergence represent ordered proximity to the establishment of an operating business but offer no quantification of that proximity and do not allow any direct comparison of the distances between the categories. Using these values in regression models that require interval or ratio scale variables would be inappropriate; indeed, these values could be replaced with any set of values in the same order (e.g. 1, 10, 80, 250) and lead to different regression estimates.
- [6] McKinnon and colleagues note that in such cases a mediation effect can exist even if there is no overall relationship between the independent and dependent variables.

APPENDIX I

In order to verify that the coding of venture emergence was indeed ordered in nature (i.e. that 3 represented higher venture emergence than 2), I derived and examined the descriptive statistics for the status of the venturing efforts, as presented in the table below. It presents the data for all nascent entrepreneurs observed in Wave 2 who had either given up or were still involved with the venturing effort. To the extent that the baseline probabilities of transitioning from each category to other categories are different, then this attests to gradation in the different venture emergence categories. For each nascent entrepreneur observed in Wave 2, I used the follow-up data from Waves 3 and 4 to see whether different reported status in Wave 2 was indeed associated with different prevalence of eventual successes. Of the inactive start-up cases in Wave 2, 72 per cent were eventually discontinued and 6 per cent reached operating stage. In contrast, of the active

start-up cases in Wave 2, 18 per cent were eventually discontinued and 27 per cent reached operating stage. These differences were statistically significant, suggesting that codes 2 and 3 were indeed distinct in their representation of venture emergence. In addition, since some of the active start-ups were eventually discontinued and some of the inactive start-ups eventually reached operating status, there was significant distinction between codes 1 and 2 and between codes 3 and 4.

<i>Business status at Wave 2</i>	<i>Number of cases</i>	<i>Business status after Waves 3 and 4</i>					<i>t-value for difference from previous category in terms of:</i>	
		<i>No longer involved</i>	<i>No longer worked on</i>	<i>Inactive start-up</i>	<i>Active start-up</i>	<i>Operating business</i>	<i>No longer worked on</i>	<i>Operating business</i>
Gave up	47		47 100.0%	0 0.0%	0 0.0%	0 0.0%		
Inactive	32	1 3.1%	23 71.9%	4 12.5%	2 6.3%	2 6.3%	4.23***	1.75*
Active	66	4 6.1%	12 18.2%	13 19.7%	19 28.8%	18 27.3%	6.05***	2.47**
Operating	50		0 0.0%	0 0.0%	0 0.0%	50 100.0%	3.30***	11.45***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

APPENDIX II

Measurement Scales Used in the Study

Start-up self-efficacy ($\alpha = 0.77$)

Your reactions to this specific business start-up would also be very useful. How would you respond to the following descriptions of the firm and its situation? [QK1] (emphasis added) (1 = completely disagree, 5 = completely agree)

- If I work hard, I can successfully start a business
- Starting a business is much more desirable than other career opportunities I have
- If I start a business, it will help me achieve other important goals in my life
- Overall, my skills and abilities will help me start a business
- My past experience will be very valuable in starting a business
- I am confident I can put in the effort needed to start a business

Opportunity feasibility belief (achieving milestones) ($\alpha = 0.82$)

Considering the economic and community context for the new firm, how certain are you that the new business will be able to accomplish each of the following? [QD1] (1 = very low certainty, 5 = very high certainty, 8 = does not apply – treated as missing)

- a. Obtain raw materials
- b. Attract employees
- c. Obtain start-up capital
- d. Obtain working capital
- e. Deal with distributors
- f. Attract customers
- g. Compete with other firms
- h. Comply with local, state, and federal regulations
- i. Keep up with technological advances
- j. Obtain a bank's help
- k. Obtain venture capitalists help

Control Variables

General self-efficacy ($\alpha = 0.89$)

In your work, how do you feel about the following activities? [QJ3]

(1 = very confident, 5 = not at all confident, scores recoded in increasing order)

- a. That you will be successful in completing new tasks
- b. That you can reach goals you set for yourself
- c. That you will be successful when confronting obstacles

Start-up motivation ($\alpha = 0.73$)

The following statements can be used to describe most people. How accurately would they describe you? [QL1]

(1 = completely untrue, 5 = completely true)

- d. I would rather have my own business than pursue another promising career
- e. There is no limit as to how long I would give maximum effort to establish my business
- f. My personal philosophy is to do whatever it takes to establish my own business

REFERENCES

- Ajzen, I. (1991). 'The theory of planned behavior'. *Organizational Behavior and Human Decision Processes*, **50**, 179–211.
- Aldrich, H. E. and Ruef, M. (2006). *Organizations Evolving*, 2nd edition. London: Sage.
- Allinson, C. W., Chell, E. and Hayes, J. (2000). 'Intuition and entrepreneurial behaviour'. *European Journal of Work and Organizational Psychology*, **9**, 31–43.
- Amit, R., Muller, E. and Cockburn, I. (1995). 'Opportunity costs and entrepreneurial activity'. *Journal of Business Venturing*, **10**, 95–106.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). 'Human agency in social cognitive theory'. *American Psychologist*, **44**, 1175–84.
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: Freeman.
- Baron, R. and Kenney, D. (1986). 'The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical consideration'. *Journal of Personality and Social Psychology*, **51**, 1173–82.
- Bates, T. (1990). 'Entrepreneur human capital inputs and small business longevity'. *Review of Economics and Statistics*, **72**, 551–9.

- Becker, G. S. (1975). *Human Capital*. Chicago, IL: Chicago University Press.
- Berk, R. A. (1983). 'An introduction to sample selection bias in sociological data'. *American Sociological Review*, **48**, 386–98.
- Bosma, N., van Praag, M., Thurik, R. and de Wit, G. (2004). 'The value of human and social capital investments for the business performance of startups'. *Small Business Economics*, **23**, 227–36.
- Boyd, N. G. and Vozikis, G. S. (1994). 'The influence of self-efficacy on the development of entrepreneurial intentions and actions'. *Entrepreneurship Theory and Practice*, **18**, 63–77.
- Bruderl, J., Preisendorfer, P. and Ziegler, R. (1992). 'Survival chances of newly founded business organizations'. *American Sociological Review*, **57**, 227–42.
- BusinessWeek* (2009). 'How Procter & Gamble plans to clean up'. 2 April.
- Campbell, D. J. (1988). 'Task complexity: a review and analysis'. *Academy of Management Review*, **13**, 40–52.
- Carroll, G. R. and Mosakowski, E. (1987). 'The career dynamics of self-employment'. *Administrative Science Quarterly*, **32**, 570–89.
- Cassar, G. (2006). 'Entrepreneur opportunity costs and intended venture growth'. *Journal of Business Venturing*, **21**, 610–32.
- Casson, M. (1982). *The Entrepreneur: An Economic Theory*. Totowa, NJ: Barnes and Noble Books.
- Castrogiovanni, G. (1996). 'Pre-startup planning and the survival of new small businesses: theoretical linkages'. *Journal of Management*, **22**, 801–22.
- Chatterji, A. K. (2009). 'Spawned with a silver spoon? Entrepreneurial performance and innovation in the medical device industry'. *Strategic Management Journal*, **30**, 185–206.
- Chen, C. C., Greene, P. G. and Crick, A. (1998). 'Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?'. *Journal of Business Venturing*, **13**, 295–316.
- Chen, G., Gully, S. M. and Eden, D. (2001). 'Validation of a new general self-efficacy scale'. *Organizational Research Methods*, **4**, 62–83.
- Colombo, M. G. and Grilli, L. (2005). 'Founders' human capital and the growth of new technology-based firms: a competence-based view'. *Research Policy*, **34**, 795–816.
- Colombo, M. G., Delmastro, M. and Grilli, L. (2004). 'Entrepreneurs' human capital and the start-up size of new technology-based firms'. *International Journal of Industrial Organization*, **22**, 1183–211.
- Companyans, Y. E. and McMullen, J. S. (2007). 'Strategic entrepreneurs at work: the nature, discovery, and exploitation of entrepreneurial opportunities'. *Small Business Economics*, **28**, 301–22.
- Cooper, A. C., Gimeno-Gascon, F. J. and Woo, C. Y. (1994). 'Initial human and financial capital as predictors of new venture performance'. *Journal of Business Venturing*, **9**, 371–95.
- Cooper, A. C., Folta, T. B. and Woo, C. (1995). 'Entrepreneurial information search'. *Journal of Business Venturing*, **10**, 107–20.
- Corbett, A. C. (2007). 'Learning asymmetries and the discovery of entrepreneurial opportunities'. *Journal of Business Venturing*, **22**, 97–118.
- Corbett, A. C., Neck, H. M. and DeTienne, D. (2007). 'How corporate entrepreneurs learn from fledgling innovation initiatives: cognition and the development of a termination script'. *Entrepreneurship Theory and Practice*, **31**, 829–52.
- Davidsson, P. (2003). 'The domain of entrepreneurship research: some suggestions'. In Katz, J. A. and Shepherd, D. A. (Eds), *Advances in Entrepreneurship, Firm Emergence and Growth*, Vol. 6. Oxford: Elsevier/JAI Press, 315–72.
- Davidsson, P. (2006). 'Nascent entrepreneurship: empirical studies and developments'. *Foundations and Trends in Entrepreneurship*, **2**, 1–76.
- Davidsson, P. and Honig, B. (2003). 'The role of social and human capital among nascent entrepreneurs'. *Journal of Business Venturing*, **18**, 301–31.
- Davidsson, P. and Wiklund, J. (2001). 'Levels of analysis in entrepreneurship research: current practice and suggestions for the future'. *Entrepreneurship Theory and Practice*, **25**, 81–99.
- Delmar, F. and Shane, S. (2003). 'Does business planning facilitate the development of new ventures?'. *Strategic Management Journal*, **24**, 1165–85.
- Delmar, F. and Shane, S. (2004). 'Legitimizing first: organizing activities and the survival of new ventures'. *Journal of Business Venturing*, **19**, 385–410.
- Diefendorff, J. M. and Lord, R. G. (2003). 'The volitional and strategic effects of planning on task performance and goal commitment'. *Human Performance*, **16**, 365–87.
- Dimov, D. (2007a). 'From opportunity insight to opportunity intention: the importance of person-situation learning match'. *Entrepreneurship Theory and Practice*, **31**, 561–83.
- Dimov, D. (2007b). 'Beyond the single-person, single-insight attribution in understanding entrepreneurial opportunities'. *Entrepreneurship Theory and Practice*, **31**, 713–31.

- Eckhardt, J. T. and Shane, S. A. (2003). 'Opportunities and entrepreneurship'. *Journal of Management*, **29**, 333–49.
- Edwards, J. R. and Bagozzi, R. P. (2000). 'On the nature and direction of relationships between constructs and measures'. *Psychological Methods*, **5**, 155–74.
- Evans, D. S. and Leighton, L. S. (1989). 'Some empirical aspects of entrepreneurship'. *American Economic Review*, **79**, 519–35.
- Fiol, C. M. and Huff, A. S. (1997). 'Maps for managers: where are we? Where do we go from here?'. *Journal of Management Studies*, **29**, 267–85.
- Forbes, D. P. (2005). 'Managerial determinants of decision speed in new ventures'. *Strategic Management Journal*, **26**, 355–66.
- Gartner, W. B. and Carter, N. M. (2003). 'Entrepreneurial behaviour and firm organizing processes'. In Acs, Z. J. and Audretsch, D. B. (Eds), *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. Dordrecht: Kluwer, 195–221.
- Gimeno, J., Folta, T. B., Cooper, A. C. and Woo, C. Y. (1997). 'Survival of the fittest: entrepreneurial human capital and the persistence of underperforming firms'. *Administrative Science Quarterly*, **42**, 750–83.
- Gist, M. E. (1987). 'Self-efficacy: implications for organizational behavior and human resource management'. *Academy of Management Review*, **12**, 472–85.
- Gist, M. E. and Mitchell, T. R. (1992). 'Self-efficacy: a theoretical analysis of its determinants and malleability'. *Academy of Management Review*, **17**, 183–211.
- Gollwitzer, P. M. (1996). 'The volitional benefits of planning'. In Gollwitzer, P. M. and Bargh, J. A. (Eds), *The Psychology of Action: Linking Cognition and Motivation to Behavior*. New York: Guilford, 287–312.
- Gruber, M., MacMillan, I. C. and Thompson, J. D. (2008). 'Look before you leap: market opportunity identification in emerging technology firms'. *Management Science*, **54**, 1652–65.
- Heckman, J. (1979). 'Sample selection bias as a specification error'. *Econometrica*, **47**, 153–61.
- Heise, D. R. (1972). 'Employing nominal variables, induced variables, and block variables in path analysis'. *Sociological Methods and Research*, **1**, 147–73.
- Hoc, J.-M. (1988). *Cognitive Psychology of Planning*. London: Academic Press.
- Honig, B. and Karlsson, T. (2004). 'Institutional forces and the written business plan'. *Journal of Management*, **30**, 29–48.
- Klein, P. G. (2008). 'Opportunity discovery, entrepreneurial action, and economic organization'. *Strategic Entrepreneurship Journal*, **4**, 175–90.
- Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.
- Kor, Y. Y., Mahoney, J. T. and Michael, S. C. (2007). 'Resources, capabilities, and entrepreneurial perceptions'. *Journal of Management Studies*, **44**, 1187–212.
- Koriat, A., Lichtenstein, S. and Fischhoff, B. (1980). 'Reasons for confidence'. *Journal of Experimental Psychology Human Learning and Memory*, **6**, 107–18.
- Krueger, J. N. F., Reilly, M. D. and Carsrud, A. L. (2000). 'Competing models of entrepreneurial intentions'. *Journal of Business Venturing*, **15**, 411–32.
- Krueger, N. and Dickson, P. R. (1994). 'How believing in ourselves increases risk taking: perceived self-efficacy and opportunity recognition'. *Decision Sciences*, **25**, 385–400.
- Lange, J. E., Mollov, A., Pearlmutter, M., Singh, S. and Bygrave, W. D. (2007). 'Pre-start-up formal business plans and post-start-up performance: a study of 116 new ventures'. *Venture Capital*, **9**, 237–56.
- Liao, J. and Gartner, W. (2006). 'The effects of pre-venture plan timing and perceived environmental uncertainty on the persistence of emerging firms'. *Small Business Economics*, **27**, 23–40.
- Lichtenstein, B. B., Dooley, K. J. and Lumpkin, G. T. (2006). 'Measuring emergence in the dynamics of new venture creation'. *Journal of Business Venturing*, **21**, 153–75.
- Lichtenstein, B. B., Carter, N. M., Dooley, K. J. and Gartner, W. B. (2007). 'Complexity dynamics of nascent entrepreneurship'. *Journal of Business Venturing*, **22**, 236–61.
- Locke, E. A. and Latham, G. P. (1990). *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, NJ: Prentice Hall.
- Lounsbury, M. and Glynn, M. A. (2001). 'Cultural entrepreneurship: stories, legitimacy, and the acquisition of resources'. *Strategic Management Journal*, **22**, 545.
- Low, M. B. and Abrahamson, E. (1997). 'Movements, bandwagons, and clones: industry evolution and the entrepreneurial process'. *Journal of Business Venturing*, **12**, 435–57.
- MacKinnon, D. P. and Dwyer, J. H. (1993). 'Estimating mediated effects in prevention studies'. *Evaluation Review*, **17**, 144–58.

- MacKinnon, D. P., Fairchild, A. J. and Fritz, M. S. (2007). 'Mediation analysis'. *Annual Review of Psychology*, **58**, 593–614.
- Markman, G. D., Balkin, D. B. and Baron, R. A. (2002). 'Inventors and new venture formation: the effects of general self-efficacy and regretful thinking'. *Entrepreneurship Theory and Practice*, **27**, 149–65.
- McCarthy, A. M., Schoorman, F. D. and Cooper, A. C. (1993). 'Reinvestment decisions by entrepreneurs: rational decision-making or escalation of commitment?'. *Journal of Business Venturing*, **8**, 9–24.
- McMullen, J. S. and Shepherd, D. A. (2006). 'Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur'. *Academy of Management Review*, **31**, 132–52.
- Mitchell, R. K., Busenitz, L., Lant, T., McDougall, P. P., Morse, E. A. and Smith, J. B. (2002). 'Toward a theory of entrepreneurial cognition: rethinking the people side of entrepreneurship research'. *Entrepreneurship Theory and Practice*, **27**, 93–104.
- Newbert, S. L. (2005). 'New firm formation: a dynamic capability perspective'. *Journal of Small Business Management*, **43**, 55–77.
- Parker, S. C. and Belghitar, Y. (2006). 'What happens to nascent entrepreneurs? An econometric analysis of the PSED'. *Small Business Economics*, **27**, 81–101.
- Pennings, J. M., Lee, K. and van Witteloostuijn, A. (1998). 'Human capital, social capital, and firm dissolution'. *Academy of Management Journal*, **41**, 425–40.
- Reynolds, P. D. (2000). 'National panel study of U.S. business startups: background and methodology'. In Katz, J. A. (Ed.), *Advances in Entrepreneurship, Firm Emergence, and Growth*. Stamford, CT: JAI Press, 153–227.
- Reynolds, P. D. and Curtin, R. T. (2008). 'Business creation in the United States: panel study of entrepreneurial dynamics. II: Initial assessment'. *Foundations and Trends in Entrepreneurship*, **4**, 155–307.
- Reynolds, P. D. and White, S. (1997). *The Entrepreneurial Process*. Westport, CT: Quorum Books.
- Ronstadt, R. (1988). 'The corridor principle'. *Journal of Business Venturing*, **3**, 31–40.
- Rotefoss, B. and Kolvereid, L. (2005). 'Aspiring, nascent and fledgling entrepreneurs: an investigation of the business start-up process'. *Entrepreneurship & Regional Development*, **17**, 109–27.
- Samuelsson, M. and Davidsson, P. (2009). 'Does venture opportunity variation matter? Investigating systematic process differences between innovative and imitative new ventures'. *Small Business Economics*, **33**, 229–55.
- Sarasvathy, S. D. (2001). 'Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency'. *Academy of Management Review*, **26**, 243–63.
- Schoonhoven, C. B., Eisenhardt, K. M. and Lyman, K. (1990). 'Speeding products to market: waiting time to first product introduction in new firms'. *Administrative Science Quarterly*, **35**, 177–207.
- Shane, S. (2000). 'Prior knowledge and the discovery of entrepreneurial opportunities'. *Organization Science*, **11**, 448.
- Shane, S. and Venkataraman, S. (2000). 'The promise of entrepreneurship as a field of research'. *Academy of Management Review*, **25**, 217–26.
- Shank, R. and Abelson, R. (1977). *Scripts, Plans, Goals and Understanding*. Hillsdale, NJ: Erlbaum.
- Shaver, K. G. and Scott, L. R. (1991). 'Person, process, choice: the psychology of new venture creation'. *Entrepreneurship Theory and Practice*, **Winter**, 23–45.
- Shaver, K. G., Carter, N. M., Gartner, W. B. and Reynolds, P. D. (2001). *Who is a Nascent Entrepreneur? Decision Rules for Identifying and Selecting Entrepreneurs in the Panel Study of Entrepreneurial Dynamics*. Paper presented at the Babson Kauffman Entrepreneurship Research Conference, Jönköping, Sweden, 7–9 June.
- Shepherd, D. A. and DeTienne, D. (2005). 'Prior knowledge, potential financial reward, and opportunity identification'. *Entrepreneurship Theory and Practice*, **29**, 91–112.
- Shepherd, D. A., McMullen, J. S. and Jennings, P. D. (2007). 'The formation of opportunity beliefs: overcoming ignorance and reducing doubt'. *Strategic Entrepreneurship Journal*, **1**, 75–95.
- Shook, C. L., Priem, R. L. and McGee, J. E. (2003). 'Venture creation and the enterprising individual: a review and synthesis'. *Journal of Management*, **29**, 379–99.
- Smith, N. R. (1967). *The Entrepreneur and His Firm: The Relationship between Type of Man and Type of Company*. East Lansing, MI: Michigan State University.
- Stinchcombe, A. L. (1965). 'Social structure and organizations'. In March, J. G. (Ed.), *Handbook of Organizations*, Chicago, IL: Rand McNally, 142–93.
- Stuart, R. W. and Abetti, P. A. (1990). 'Impact of entrepreneurial and management experience on early performance'. *Journal of Business Venturing*, **5**, 151–62.
- Tierney, P. and Farmer, S. M. (2002). 'Creative self-efficacy: its potential antecedents and relationship to creative performance'. *Academy of Management Journal*, **45**, 1137–48.
- Tripoli, A. M. (1998). 'Planning and allocating: strategies for managing priorities in complex jobs'. *European Journal of Work and Organizational Psychology*, **7**, 455–75.

- Tubbs, M. E. and Ekeberg, S. E. (1991). 'The role of intentions in work motivation: implications for goal-setting theory and research'. *Academy of Management Review*, **16**, 180–99.
- Ucbasaran, D., Westhead, P. and Wright, M. (2008). 'Opportunity identification and pursuit: does an entrepreneur's human capital matter?'. *Small Business Economics*, **30**, 153–73.
- Van de Ven, A. H., Hudson, R. and Shroeder, D. M. (1984). 'Designing new business start-ups: entrepreneurial, organizational, and ecological considerations'. *Journal of Management*, **10**, 87–107.
- van Gelderen, M., Thurik, R. and Bosma, N. (2005). 'Success and risk factors in the pre-start-up phase'. *Small Business Economics*, **24**, 365–80.
- von Mises, L. (1949). *Human Action: A Treatise on Economics*. New Haven, CT: Yale University Press.
- Wagner, J. (2005). *Nascent and Infant Entrepreneurs in Germany. Evidence from the Regional Entrepreneurship Monitor (REM)*. Working Paper Series in Economics, 1, University of Lüneburg.
- Wennberg, K., Wiklund, J., DeTienne, D. R. and Cardon, M. S. (2009). 'Reconceptualizing entrepreneurial exit: divergent exit routes and their drivers'. *Journal of Business Venturing*, in press (published online 20 February 2009; doi: 10.1016/j.jbusvent.2009.01.001).
- West, G. P. and Noel, T. W. (2009). 'The impact of knowledge resources on new venture performance'. *Journal of Small Business Management*, **47**, 1–22.
- Zhao, H., Seibert, S. E. and Hills, G. E. (2005). 'The mediating role of self-efficacy in the development of entrepreneurial intentions'. *Journal of Applied Psychology*, **90**, 1265–72.