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Entrepreneurial Learning; Intuiting, Scanning, Internalizing and Routinizing

Abstract

Purpose

Despite an increasing number of publications focusing on the phenomenon of entrepreneurial learning, it is still unclear how this learning process differs from wider organizational learning. This paper addresses this gap by highlighting four key processual dimensions unique to entrepreneurial learning; intuiting, scanning, internalizing and routinizing.

Approach

Drawing on various conceptual and empirical papers published in this area over the last 20 years, common threads in the literature are identified, which point towards these four key dimensions of entrepreneurial learning.

Findings

It is thus argued that the ability of the entrepreneurial team to learn form and adapt to changes in the external market involves all four dimensions of intuiting, scanning, internalizing and routinizing. Intuiting involves drawing on prior knowledge to create new opportunity sets, and skills. These ideas and skills are then tested in the market, through scanning and market research. Internalizing allows the entrepreneurial team to question taken for granted assumptions, as existing ways of working and views of the world are continually adapted. Finally, routinization is the process whereby the entrepreneurial team accumulates a situated knowledge of the changing world around them, and in the process, frees up valuable cognitive resources, needed in the continual process of intuiting, scanning and internalizing.

Originality/value

It is argued that the adaptability of entrepreneurial ventures hinges on all four processual dimensions.

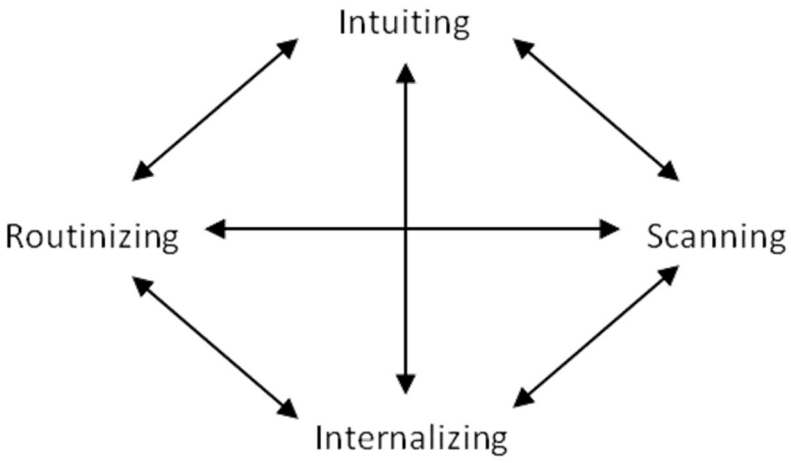
Keywords: Entrepreneurial Learning; Intuiting; Scanning; Internalizing; Routinizing

Introduction

Entrepreneurial learning is a process which shapes the birth and continual adaptation of organizations (Deakins and Freel, 1998). Yet despite recent advances in our understanding of the phenomenon, it is still unclear how entrepreneurs learn to adapt to changing markets and how the learning process differs from non-entrepreneurs and wider organizational learning (Wang and Chugh, 2014). The process of learning within organizations is seen as inherently social, occurring through the interactions of individuals and groups (March and Olsen, 1975; Kim, 1993; Crossan *et al.*, 1999) at multiple levels within a nested hierarchy. Research thus highlights how actors at different levels respond to changes in the environment (March and Olsen, 1975), how learning is transferred between levels via shared understandings (Kim, 1993), and how learning within organizations is fundamentally a social process (Crossan *et al.*, 1999). Whilst the literature on entrepreneurial learning has largely ignored this multi-level dimension (Wang and Chugh, 2014), equally the literature on organizational learning does not capture the dynamic, adaptive and practice-based nature of entrepreneurial learning (Lave and Wenger, 1990; Deakins and Freel, 1998; Cope, 2005; Politis, 2005), where ventures learn by doing (Cope and Watts, 2000; Rae, 2000), through trial and error, and discovery (Deakins and Freel, 1998). An opportunity therefore exists to draw insights from each of these domains to better understand the learning process in both. In light of this gap, the following research question guided the development of this paper; "What processes shape the ability of an entrepreneurial team to learn from and adapt to changes in the marketplace?"

In their seminal 1999 paper, Crossan *et al.* put forward the four processes of intuiting, interpreting, integrating and institutionalizing to conceptualize learning across layers of an organization (Crossan *et al.*, 1999). Their "4I" framework, conceptualizes the process in which knowledge is fed forward and fed back through a hierarchy of individuals, groups and organization. Whilst intuiting represents the genesis of knowledge creation at the individual level, emergent ideas are shared and interpreted at the local group level. As knowledge progresses through the hierarchy, it is assimilated and integrated into collective knowledge systems. Finally, this knowledge is "institutionalized" at an organizational level through the development and implementation of formal routines and procedures. Retaining this focus on processes underpinning learning, I argue that the success of entrepreneurial learning is shaped by the four processual dimensions of intuiting, scanning, internalizing and routinizing (see figure 1). Drawing on various conceptual and empirical papers published in this area over the last 20 years, I identify common threads in the literature which point towards these four processual dimensions.

Figure 1 The Processes of Entrepreneurial Learning



I argue that these processes are interdependent, and mutually constitutive parts of the wider process of entrepreneurial learning, and I propose that a deficiency in one area can undermine efforts in another. It is recognized that each venture differs in the complement of skills and abilities within the entrepreneurial team, the requirements of the industry within which it operates, and indeed, the learning behaviors of these teams. However in this paper, I generalize the processes of learning to develop a conceptualization which might then be used to understand the differentiated nature of entrepreneurial learning. I argue below that these four processes enhance the ability of the start-up to learn from and adapt to changes in the marketplace.

The approach taken to review the literature included two phases. First a search for articles was completed using key words; “entrepreneurial learning”, “learning by doing”, “learning”, “adapting”, “small business” and “entrepreneur”. This resulted in 63 articles, books and book chapters reviewed, of which 24 were deemed most relevant for the research question set. Key concepts from these papers were organized around two core entrepreneurial processes of “opportunity discovery” and “opportunity exploitation” (Shane and Venkataraman, 2000). Second, a further organization of concepts was carried out around emergent processual themes of; intuiting, scanning, internalizing and routinizing. In the presentation that follows, themes of opportunity discovery and opportunity exploitation are subsumed within these four processes. The development of ideas involved a further process of snowballing, searching related literatures in entrepreneurship, organizational learning and psychology.

Intuiting

The process of intuiting in entrepreneurial learning is seen to relate to not only to the discovery of opportunities, but also their exploitation and continual development (Breslin, 2015; 2017; Secundo *et al.*, 2017). Furthermore, this process is not necessarily an individual endeavor, but can involve interaction between members of entrepreneurial team and wider network (Dobson *et al.*, 2013). Opportunities which are formed through exogenous shocks to markets or industries, such as technological breakthroughs, are “discovered” by entrepreneurs (Gaglio and Katz, 2001; Shane, 2003). While the scanning of environments can result in knowledge structures being created and stored in memory (see below), cognitive processes work on these to make connections and associations, in the discovery of opportunities (Kaish and Gilad, 1991; Shaver and Scott, 1991). As Kirzner (1997, pp. 71-72) explained; “what distinguishes discovery (relevant to hitherto unknown profit opportunities) from successful search (relevant to the deliberate production of information which one knew one had lacked)

is that the former (unlike the latter) involves the surprise that accompanies the realization that one had overlooked something in fact readily available". Discovery therefore involves a process of insight and intuiting, in which unique associations are made (Tang *et al*., 2012). Some argue that insight is not a key or essential part of the discovery process. For instance, Fiet (2002) argues that when entrepreneurs discover opportunities, it is not because they have unique skills of perception, and likewise a lack of insight does not mean that discoveries cannot be made. Baron (2007) on the other hand stresses the role played by pattern recognition as a key cognitive process, in which the individual notices meaningful patterns in complex events, trends, or changes (Gaglio and Katz, 2001; Baron, 2007). So even if an opportunity might "exist" in the marketplace, not everyone will discover it, because of the unique creative leaps the individual must make in order to "see" the opportunity in the first place.

The exploitation of opportunities is equally seen to involve a process of intuiting as the entrepreneurial team adapts and reacts to the changing circumstances of start-up and growth. This involves both single- and double-loop learning (Argyris and Schon, 1978), as the entrepreneurial team experiments with new ways of working, and new ways of viewing the world around them. In the former case, the individual makes small changes to the way they carry out tasks, advancing in an incremental trial-and-error sense. These small step changes nonetheless involve a process of intuiting, as tentative changes are made based on previous performances. Indeed, this creative process underpins the continuous improvement seen in many organizations. However, the entrepreneurial team also makes greater leaps into the unknown, through double-loop or generative learning. Here instead of improving an existing process or way of working, new approaches are put forward. Scholars argue that this higher-level learning is key to continually adapting to changing marketplaces (Kirzner, 1973; Shane and Venkataraman, 2000), both through the discovery and exploitation of opportunities (Breslin, 2017). Intuiting can also be a collective activity through the interactions of the entrepreneurial team and wider network. Recent research in psychology points to important cognitive, social and motivational factors that enhance the creative process through social interactions (Paulus and Brown, 2007; Breslin, 2018). In this way, the process of association through which ideas emerge, occurs through interpersonal interactions, as ideas are triggered through the contributions of other members (Paulus, 2000). These contributions in turn are attended to through intensified social interactions (Paulus and Brown, 2007).

In its continual search for survival, it is argued that the ability to learn is thus underpinned by creative approaches, insight, counterfactual and generative thinking (Wang and Chugh, 2014) involving members of the entrepreneurial team and network (Dobson *et al.*, 2013). Contrary to Crossan *et al.*'s model of organizational learning, this process of intuiting relates both to the discovery and exploitation of opportunities. Therefore,

> *Proposition 1: There is a positive relationship between the adaptability of the entrepreneurial venture and occurrences of intuiting within the entrepreneurial team.*

Scanning

If opportunities exist somewhere out there to be discovered, then entrepreneurial learning connects with these through search (Alvarez and Barney, 2007). A number of authors focus on this role played by searching and scanning for information (Tang *et al.*, 2012). Fiet (2002) proposes a focused and targeted deliberate search process. After all he argues, entrepreneurs

can only exploit opportunities in areas where they have expertise, and which fit specific acquired knowledge. Kirzner (1997) on the other hand argues that the search process is passive, as one cannot predict in advance where an opportunity might lie, or what domains of knowledge that opportunity might be related to. By remaining "alert" however, some individuals are more capable of discovering these opportunities (Kirzner, 1997; Gaglio and Katz, 2001). Kirzner (1997) defined alertness as an ability to identify opportunities not identified by others. Other scholars have proposed alternative search patterns. For instance, Tang *et al*. (2012) argue that "alert scanning" can allow the entrepreneur to build wide stores of information in different domains. Dew (2009) puts forward the notion of serendipity in opportunity discovery, as the entrepreneur, while involved in some form of search, accidentally discovers something they weren't looking for.

This focus on search and scanning is not seen to be confined to the initial moment of discovery, as the need to adapt to changing circumstances requires the entrepreneurial team to be outward and externally facing, continually scanning markets for information (Cope, 2005). Rae (2006) argued that entrepreneurial learning involves a process of contextual learning, as they are immersed within learning environments, gaining knowledge through experience, intuiting and sense making. Entrepreneurial learning is seen to involve a continual gathering of knowledge about contacts, markets, and competition (Shepherd *et al.*, 2000; Politis, 2005). By being immersed in markets, ventures are close to their customers, and as a result are better able to spot changes. Recent research in enterprise education also found that graduate entrepreneurs who adopted more of an external focus in their behaviors produced higher quality business ideas (Breslin, 2017). Given the credibility issues that nascent small businesses face (Birley, 1996), entrepreneurial teams need to gain knowledge and experience within the specific industry in which they operate (Shepherd *et al.*, 2000; Shane, 2003). As seen above, Dutta and Crossan (2005) argue that opportunities are discovered through a process of learning, and by scanning and acquiring knowledge of markets, the entrepreneur spots new opportunities as they emerge. Kirzner (1973) argued that entrepreneurs become alert to opportunities through their unique access to knowledge of the market, and by being in the right place at the right time. However, being close to the market and having an intimate knowledge of changing customer needs is key to the process of exploitation. This leads to changes not only in how things are done via skills developed, but how the entrepreneurial team views the world around them.

In summary, the learning entrepreneurial team is immersed in markets constantly scanning to gather intelligence, which then triggers changes in behaviors and worldviews. In contrast, in models of organizational learning, the process of interpretation occurs in the context of noise from multiple competing parties throughout the organization (Crossan *et al.*, 1999). By prioritizing customer feedback and environmental signals, entrepreneurial learners ensure these signals act as key drivers for ongoing change and learning. Therefore,

> *Proposition 2: There is a positive relationship between the adaptability of the entrepreneurial venture and the degree to which the entrepreneurial team scan external sources.*

Internalizing

The external orientation achieved through scanning is matched with an internal orientation in the evaluation of these external signals, as taken for granted assumptions are continually

questioned (Gaglio and Katz, 2001) through a process of internalizing. Like the Roman god Janus, it is argued here that entrepreneurial learners have two opposing faces, simultaneously oriented externally and internally. As noted above, intuiting involves making associations between knowledge structures (i.e. ideas, concepts, cognitive representations), and search and scanning are key to developing this. However, those knowledge structures must first be internalized before cognitive processes can be set to work on them. In the discovery of opportunities, most scholars highlight the role played by prior experience, and related development of knowledge structures by the entrepreneur. This knowledge is seen to be domain-specific (Kirzner, 1997), or a combination of general (publicly accessible) and specific (privately acquired) sources (Fiet, 2002; 2007). Some outline in more detail the cognitive structures through which this knowledge is developed and stored in the heads of entrepreneurs as they interact with the world around them (Forbes, 1999; Shane and Venkataraman, 2000; Mitchell *et al.*, 2002; Baron, 2007). Thus concepts are seen to represent different aspects of the markets within which entrepreneurs operate (Gaglio and Katz, 2001; Baron, 2007), such as an entrepreneur's understanding of the behaviors of customers or suppliers. Through the process of intuiting, these concepts are stretched, combined or expanded by analogy (Baron, 2007). In sum, having discovered an opportunity, the entrepreneurial team needs to evaluate it, and in this process, change internalized knowledge structures.

Whilst scanning allows the entrepreneurial team to continually change and adapt to the needs of the marketplace, evaluating market intelligence is seen to be problematic. Research in cognitive psychology has shown that the evaluation process is subject to many limitations (Rietzschel *et al.*, 2010), and as a result, scanning environments for feedback, and then acting on that feedback, become critical in entrepreneurial learning. Evaluation involves entrepreneurial teams both assessing the viability and future potential of actions (Tang *et al*., 2012), and in reacting to continual changes in the market (Breslin and Jones, 2012). A key element in this process is the internalization of feedback from outside sources, as the entrepreneurial team questions taken for granted assumptions, and continually searches for ways to improve their understanding of the customer, and the way in which they deliver the service/product to them.

As Crossan *et al.* (1999) note, this internalization will involve the integration of different and competing views from members of the entrepreneurial team. In collaborative learning, this involves a negotiated enterprise, with patient communication, team empowerment and shared leadership (Suonpää, 2013). However, the primacy given to external market signals (noted above) brings a focus and order to the potential cacophony of interpretations. Therefore,

> *Proposition 3: There is a positive relationship between the adaptability of the entrepreneurial venture and the extent to which feedback from external sources is internalized by the entrepreneurial team.*

Sometimes, this external feedback presents uncomfortable truths to the entrepreneurial team, and the importance of learning from mistakes, negative feedback, and failure has been stressed by many researchers (Minniti and Bygrave, 2001; Cope, 2005). Scanning for, and internalizing feedback also reduces biases inherent in the evaluation processes (Baron, 1998). However, the more feedback is interpreted as positive then the more learned behaviors become path dependant (Minniti and Bygrave, 2005), locking in certain suboptimal practices. A key element in entrepreneurial learning is therefore to avoid this lock in and constantly

challenge existing ways of viewing the world and modes of working, as opposed to ignoring, dismissing or discounting negative feedback (Gaglio and Katz, 2001). Negative feedback can trigger negative emotions especially given the uncertainty surrounding start-up, with a knock-on effect on ongoing behaviors (Baron, 2009). Entrepreneurial teams thus need to be resilient in face of such challenges, retaining a positive attitude in the face of uncertainty. Indeed, research has shown that entrepreneurs who adopt a highly reflective learning style were less successful, as they tend to struggle with doubt and negative feedback (Gemmell, 2017). Successful entrepreneurs on the other hand are found to be more resilient, having a greater sense of self-efficacy (Breslin, 2017). After all, positive affect enhances an individuals' alertness to the external environment (Isen, 2002), and their receptiveness to a wider range of environmental stimuli (Baron, 2009). Research has also shown that positive affect encourages the sort of quick decision-making processes suited to fast moving environments (Forgas and George, 2001). Therefore,

> *Proposition 4: The stronger the negative emotions experienced by the entrepreneurial team as a result of internalizing external feedback, then the weaker the positive relationship between venture adaptability and internalization.*

Routinizing

In wider organizational learning, institutionalization represents the accumulation of knowledge at an organizational level, as practices and worldviews become embedded in organizational routines, scripts and mental models (Kim, 1993; Crossan *et al.*, 1999). This final process is also associated with a growing inertia within the organization, as changes occur over a longer time frame. Whilst Crossan *et al.* (1999) argue that routines can undermine the process of exploration and discovery, some argue that with entrepreneurs, routinizing facilitates ongoing adaptation (Loasby, 2007). Recent research in cognitive psychology, points to the role of routines in triggering the process of "mindwandering" (Smallwood *et al.*, 2003), where an individual makes new insights and associations. This research has found that when completing simple daily routine or automatic tasks, the mind wanders, as attention shifts from the primary task to one's memories (Smallwood and Schooler, 2006), often without complete awareness on the part of the individual concerned (Giambra, 1995). It has been shown that undemanding routine tasks maximize the occurrences of mind wandering (Smallwood and Schooler, 2006), having a positive effect on creativity and insight (Sio and Ormerod, 2009; Baird *et al.*, 2012). Routines here are not cumbersome, institutionalized rules, but repeated habitual behaviors completed within the entrepreneurial team. The incorporation and management of such routine tasks within the daily lives of the entrepreneurial team (Breslin, 2018), can have profound implications for the process of intuiting. Loasby (2007) conjectured about the link between routines and entrepreneurial behaviors, arguing that the creation of routines freed up valuable cognitive processing resources needed for other more pressing entrepreneurial activities, such as the processing of idea sets noted above. However, routines are more than mere passive inconveniences to be passed on to other employees. Research shows that their repeated enactment facilitates and triggers key moments of insight (Sio and Ormerod, 2009; Baird *et al.*, 2012), potentially underpinning the process of opportunity discovery. One might thus expect to see a practiced opportunity discoverer regularly engaging in routine tasks and breaks during the working day.

Routinizing not only facilitates the process of discovery but also opportunity exploitation. Whilst some point to the importance of routinization in ongoing entrepreneurial activity (Loasby, 2007; Breslin and Jones, 2012), many argue that the exploitative activities associated with routinization run counter to the entrepreneurial process (Chaston *et al.* 2001; Honig, 2001; Thorpe *et al.*, 2005). Some have associated the routine with stability, an inability to change and organizational inertia (Lichtenstein and Brush, 2001), which can encourage ossification over time (Greiner, 1972; Churchill and Lewis, 1983). Scholars however confuse the notion of routinization with codification and institutionalization, which they argue is problematic for small businesses (Chaston *et al.* 2001; Honig 2001). Routinization within groups involves the development of practice-based knowledge through the repetition of activities, that facilitates not undermines continual adaptation (Feldman and Pentland, 2003; Feldman *et al.*, 2016). In this view, routines allow the entrepreneurial team to economize on learning and build knowledge through the accumulation of skills within the team, and so capitalize on experiential learning. In this way, routinization reduces the cognitive effort needed to perform key tasks, thereby freeing up valuable resources to deal with constantly changing circumstances. Therefore,

> *Proposition 5: There is a positive relationship between the adaptability of the entrepreneurial venture and the extent to which the entrepreneurial team breaks down daily activities into repeated routinized tasks.*

Exploring Dimensions of Entrepreneurial Learning

When one considers the process of learning which underpins opportunity discovery, the four dimensions of intuiting, scanning, internalizing and routinizing are seen to be essential and interrelated components in the continual adaptation of the entrepreneurial venture. Furthermore, it is argued here that the absence of one process undermines the function of the others. For instance, opportunities emerge through interrelated cognitive processes, as shown in figure 1. The unique associations created in the minds of the entrepreneurial team through intuiting, are only possible if knowledge structures are first formed through scanning and internalizing. Furthermore, this process of intuiting is seen to be triggered and managed through the process of routinizing. Intuiting also has a direct impact on the other processes. First it allows the entrepreneurial team to search and scan in the right places along information corridors (Shane, 1999), following hunches and insights regarding market opportunities. Intuiting is also closely linked with the process of internalizing, as the entrepreneurial team rethinks assumptions and views of markets through a process of generative learning.

Equally, when one considers the process of learning in opportunity exploitation, it can be argued that the four processes of intuiting, scanning, internalizing and routinizing are essential and interrelated components. Again the absence of one process undermines the function of the others. For example, routines allow the entrepreneurial team to accumulate skills to suit the demands of the market. It is only through the continual scanning and internalization of signals from the environment, that the entrepreneurial team can understand what those demands are, and what skills are needed to meet them. Furthermore, the entrepreneurial team needs to continually rethink ways of working through intuiting, in order to adapt to these changes, whether that be through small incremental improvements or larger breakthrough innovations in approaches taken. Routinizing again underpins these processes. Routinizing builds on accumulated knowledge, and economizes on effort needed to perform tasks, freeing up valuable cognitive resources needed to tackle unexpected changes in the

market. Routinization of processes such as scanning thus allow the entrepreneurial team to both economize on search and spot anomalies in scanned environments, and then internalize understandings of these.

Organizational and Entrepreneurial Learning

When considering wider organizational learning, the processes of intuition, interpretation, integration and institutionalization put forward by Crossan *et al.* (1999) to describe organizational learning, fail to capture the entrepreneurial process in important ways. First, regarding the process of intuiting, Crossan *et al.* (1999) distinguish between entrepreneurial and expert intuiting, where the former is focused more on exploration, innovation and change and the latter on processes of exploitation. However, as argued above, intuiting in entrepreneurial learning relates both to the process of opportunity discovery and exploitation (Breslin, 2015; 2017; Secundo *et al.*, 2017), as the entrepreneurial team generate new understandings of the marketplace and ways of working. Therefore, through entrepreneurial learning, both opportunity sets and skills co-evolve with changes in the marketplace (Breslin, 2017). As a result, the dualism of exploration and exploitation in Crossan and colleagues' conceptualization gives way to a duality in entrepreneurial learning.

Through the process of interpreting, individuals develop cognitive understandings of the world around them, either individually or collectively in social groups (Crossan *et al.*, 1999). This involves both a process of reading and understanding the surrounding environment, and then making sense of this through the emergence of cognitive frameworks. However, in entrepreneurial learning, two important differences become apparent. First, the entrepreneur is outward facing (Cope, 2005), constantly searching and scanning markets to gain a better understanding of changing customer needs. This orientation results in external sources being the primary trigger for change, as opposed to a competing diversity of internal signals and goals portrayed in the 4I model. Scanning the external environment thus becomes a fundamental process (and skill) in itself, as the entrepreneur becomes adept at searching in the right places at the right time, using resources from within their network of connections.

Second, this external orientation in search is matched with an internal orientation in evaluation, as the entrepreneur continually questions taken for granted assumptions (Gaglio and Katz, 2001) and internalizes new interpretive frameworks. Internalizing differs from Crossan *et al.*'s concept of integrating, which relates to the process through which learned knowledge is integrated into the wider knowledge system of the organization. Internalizing instead involves a fundamental remapping of an individual's core understandings and ways of working. Furthermore, this internalization of knowledge takes place within the context of the emerging entrepreneurial team, as opposed to a wider multi-layered organization. Integrating here thus occurs at a lower team level within the organisation (Akinci and Sadler-Smith, 2018), through a co-construction of meaning between team members (Decuyper *et al.*, 2010), and the emergence of consensus in interpretation through the mutual adjustment of individual views. This bi-directional orientation between outward-facing scanning and subsequent internalization directly connects the entrepreneur's emerging cognitive understandings with wider changes in the external marketplace, short circuiting the complex processes of organizational interpreting presented by Crossan and colleagues.

Finally, Crossan *et al.*'s (1999) notion of institutionalization fundamentally differs from the process of routinizing seen in entrepreneurial learning. The former relates to an ossification of practices through a shift in learning orientation towards the exploitation of knowledge (Greiner, 1972; Churchill and Lewis, 1983). As Crossan *et al.* (1999, p. 529) note "over time,

spontaneous individual and group learning become less prevalent, as the prior learning becomes embedded in the organization and begins to guide the actions and learning of organizational members". In this sense, institutionalization might be seen as the enemy of innovative and entrepreneurial behavior. Routinizing on the other hand, is the necessary bedfellow of entrepreneurial behavior, innovation and change (Loasby, 2007). Routinizing not only frees up valuable cognitive resources needed to continually innovate, but the activity in itself, stimulates the very processes through which intuiting and insight occurs, as discussed below (Loasby, 2007; Baird *et al.*, 2012). Entrepreneurs, like all creative individuals, are creatures of routine and habit (Currey, 2013), and routinizing allows them to accumulate knowledge alongside the continual exploration of new ideas and ways of working.

In summary, whilst Crossan *et al.*'s view of institutionalization relates to the infrequent and punctuated top-down change to an organization's systems, structures and routines, routinizing is a bottom up process in which the entrepreneurial team balances ongoing needs for both exploration and exploitation. In this sense, the notion of feedforward and feedback described by Crossan *et al.* (1999), has little meaning for the process of entrepreneurial learning. Crossan *et al.* (1999) argue that learning at the level of the individual is fed forward to higher hierarchical levels through processes of integrating and institutionalizing. At the same time, organizational rules and routines guide the behaviors and actions of individuals and groups through feedback. With entrepreneurial learning, the processes of intuiting, scanning, internalizing and routinizing are mutually constitutive parts of the learning process (see figure 1). Each depends on the other, and an absence in one or more undermines the wider process in which the entrepreneurial team adapts to change over time.

Conclusions

It is argued in this paper that the ability of the entrepreneurial team to learn from changes in the marketplace hinges on all four processual dimensions of intuiting, scanning, internalizing and routinizing. To test these propositions, future research might include a cross-sectional survey design of a sample of new ventures within a given industry. By focusing on one industry, degrees of organizational adaptability can be studied across the sample, in response to the same level of environmental dynamism within the industry. Measures for adaptability should reflect the technological newness of products and services in response to environmental dynamism as reflected by social and technological change (Simon et al., 2002; Subramaniam and Toundt, 2005). Drawing on prior research, measures can also be developed for intuiting (Khatri and Ng, 2000; Mitchell *et al*., 2005), scanning (Kaish and Gilad, 1991; Fiet, 2002; Tang *et al*., 2012), affect (Watson *et al*., 1988), and routinizing (Becker *et al*., 2005).

The processes of intuiting, scanning, internalizing and routinizing allow the entrepreneurial team to continually evolve with changing external markets. Intuiting involves drawing on prior knowledge to create new opportunity sets, and skills. These ideas and skills are then tested in the market, through scanning and market research. This process of scanning includes bouncing ideas off other actors, and direct feedback from the market based on product/service offering. Internalizing allows the entrepreneurial team to question taken for granted assumptions, as existing ways of working and views of the world are continually adapted. Finally, routinization is the process whereby the entrepreneurial team accumulates a situated knowledge of the changing world around them, and in the process, frees up valuable cognitive resources, needed in the continual process of intuiting, scanning and internalizing.

The new venture is a learning animal, continually adapting many forms of knowledge to the world around them. They are both driven by this process, and equally are never satisfied by it, as they continually evolve over time.

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