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I THINK THEREFORE I LEARN?
ENTREPRENEURIAL COGNITION, LEARNING AND KNOWING IN PRACTICE

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Abstract. In observing recent theoretical developments in the field, it is apparent that two distinctive yet relatively separate areas of study have emerged—entrepreneurial cognition and entrepreneurial learning. This conceptual paper aims to create some measure of reconciliation between these two perspectives to provide a more robust and multidisciplinary conceptual platform for understanding the entrepreneur. We augment an appreciation of the social dimensions of the learning process by which entrepreneurs cognitively acquire and transform knowledge. Through the application of influential practice-based theorizing we offer an integrative organizing framework that places participation at the heart of entrepreneurial practice, knowledge and identity.

INTRODUCTION

In 2005 Entrepreneurship: Theory and Practice published a special issue which alerted entrepreneurship scholars to the importance of learning and knowledge. It is now widely accepted that understanding the differential propensities and abilities of individuals in how they internalize and apply knowledge, through a process of learning, is crucial to understanding entrepreneurial performance. This is because, as Corbett (2005) notes of Shane and Venkataraman (2000), "individuals must possess prior knowledge and the cognitive properties necessary to value such knowledge in order to identify new opportunities" (2005: 473). Corbett (2005) rightly highlights the centrality of learning, choosing to focus on an experiential perspective. In this theoretical paper we respond to Corbett's call to tap into greater and more diverse bodies of learning research that "can provide entrepreneurship scholars with many new conceptual tools" (2005: 487). We develop a new integrative framework which combines individualistic and cognitive conceptions of thought with socialised, practice-oriented approaches to learning and knowing. Our objective therefore is to connect cognitive mechanisms more robustly to socialised notions of entrepreneurial learning and address a central question for future cognition research—"how do entrepreneurial individuals acquire (learn) their cognitive structures and contents?" (Mitchell et al., 2007: 11).

In contributing to both the cognition and learning literatures, we seek to develop an integrated individualized/socialised conception of entrepreneurship through the application of influential social-practice perspectives of knowing and learning (Brown and Duguid, 2001;

Marshall, 2008; Gherardi, 2000; Gherardi et al., 1998). In so doing, we also build stronger links between entrepreneurial knowledge—that which is known by entrepreneurs, and entrepreneurial learning—the process by which knowledge is generated (Harrison and Leitch, 2005). The need for such theoretical integration is long overdue, and the framework we present has implications for theorizing the study of entrepreneurship in general, as well as the areas of entrepreneurial cognition and learning.

The paper makes two vital contributions. First, it takes an interdisciplinary approach to developing more explicit links between entrepreneurial cognition and learning. By drawing on well established and clearly articulated practice-based learning theories, rather than relying solely on experiential learning theory as previous entrepreneurship scholars have done (Corbett, 2005; Politis, 2005), we appreciate the fundamentally interactive and relational dimensions of the entrepreneur's cognitive schema. By conceptualizing cognitive processes as inextricably linked to socialised notions of entrepreneurial learning, we build stronger conceptual bridges between two relatively disparate literatures and present a more robust and integrative way of understanding of the person(s) practicing entrepreneurship. Second, the paper introduces a socially situated framework that builds stronger links between the outcomes of learning (information, knowledge, expertise) that impact on the entrepreneur's cognitive frameworks and the participative process by which these socio-cognitive resources are acquired. In addition to simply critiquing the limitations of under- or over-socialised versions of these phenomena, we offer a credible complementary new perspective that builds on the processual advances wrought by entrepreneurial cognition. Our aim therefore is to offer an expansive and inclusive theory, which stresses the "generative interconnections between persons, activities, knowing, and world" (Lave and Wenger, 1991: 121).

Any new theoretical offering needs to be explicit in showing the advantages of the approach. To demonstrate this we first need to establish the intellectual provenance of our case. The paper is therefore structured in the following manner. Firstly, we flesh out the limitations of viewing the entrepreneur's sense-making activities solely through a cognitive lens. We then assess the contributions and limitations of extant entrepreneurial learning theory and examine the distinctive individualized versus relational/situated strands of literature that have emerged. Corbett's (2005) work aside, we maintain that the potential compatibility between entrepreneurial cognition and learning has not been fully articulated in

an integrative way. We then present our theoretical framework which provides an opportunity for reconciling individual cognitive processes with the socialised practice of entrepreneurship.

PRIOR KNOWLEDGE AND ENTREPRENEURIAL COGNITION

Cognitive approaches to studying entrepreneurial processes have arisen as a means to continue an examination of *the* entrepreneur (Gartner, 1988), following the failure of the personality perspective (Mitchell et al., 2002; Krueger, 2003). The demoralization and frustration with trait approaches initially led to a focus on anything but the entrepreneur (Shaver and Scott, 1991). Cognitive science offered entrepreneurship a means by which to bring the individual back whilst at the same time adhering to a processual understanding of entrepreneurship within a "distinctive *and* inclusive domain/situation (Mitchell et al., 2004) of opportunity evaluation, venture creation and growth" (Mitchell et al., 2007: 2, original emphasis). Its genealogy is firmly situated within mainstream cognitive psychology, which sees human beings as information processing decision-makers who build up particular habits, routines and expertise (through internal processes of the mind) in order to structure and guide their organizing activity (Billett, 1996). The task has been to find out how entrepreneurs think and make sense of their world—how they process, acquire, and transform information into useful knowledge. Entrepreneurial cognitions are thus defined as the "knowledge structures that people use to make assessments, judgments or decisions involving opportunity evaluation, venture creation, and growth" (Mitchell et al., 2002: 97). The approach is based on the assumption that entrepreneurs share an "intentional pursuit of opportunity" and use common intellectual processes such as perception, decision-making, knowledge representation and learning in particular, entrepreneurially specific, ways (Krueger, 2003: 106, 107).

Over the last fifteen years or so entrepreneurial cognition scholars have sought to apply the conceptual armory of cognitive science to a wide range of research problems, chief of which has been the question "why are some people and not others able to discover and exploit particular entrepreneurial opportunities?" (Mitchell et al., 2002: 94). Learning however has not been an explicit and sustained focus of enquiry, as it has largely been implicitly subsumed within a knowledge acquisition process concomitant with the information-processing basis of cognitive theorizing. Turning to wider learning literature,

from a cognitive perspective learning is portrayed as the acquisition, storage (in memory) and transformation of informational inputs which lead to procedural and conceptual forms of knowledge (Billett, 1996). The outcomes of these individual constructions are cognitive structures such as heuristics, expert scripts, routines and other mental schemata that are accessible and applicable in generalized terms (Marshall, 2008). Resulting conceptualizations are seen by critics as rather static, functionalist and individualistic portrayals of learning as the passive acquisition and possession of knowledge (Gherardi, 2000: Yanow, 2004).

In order to achieve this particularly rationalistic and mechanistic conception of human beings, cognition relies on disengaging individual reasoning from the environment. Cognitive approaches tend thus to reduce social phenomena to static and categorical elements. Kirshner and Whiston (1997: vii) explain the problem in this way: "Community and culture can enter into cognitivist theory only insofar as they are decomposable into discrete elements that can participate in the stable, objective realm of experience". Two dualistically opposed entitative phenomena—mind and practice, individual and society—size up to each other with little real chance of understanding the participatory intermediate space where social relations and interactions occur. Looked at in isolation entrepreneurial cognition seems inherently limited, especially when there are significant *complementary* theoretical schema which can bridge the cognition/practice dichotomy. As Baron (2004) concedes, cognitive processes are by no means the entire story where entrepreneurs are concerned. This article proposes that for entrepreneurial scholars to achieve a comprehensive understanding of entrepreneurial learning and knowledge processes, we must locate cognition more effectively within its socio-cultural context. Specifically, the complex and dynamic interdependencies between situated learning and processes of the entrepreneurial mind must be examined together. It is to an explanation of extant notions of entrepreneurial learning that we now turn in order to examine the underlying social/cognitive dimensions of such theorizing.

TOWARDS A PRACTICE-BASED VIEW OF LEARNING, KNOWLEDGE AND ENTREPRENEURSHIP

Recently, another distinctive approach to understanding the "people side" of entrepreneurship (Mitchell et al., 2002) has emerged that has similarly sought to re-energize discussions of the entrepreneur. Entrepreneurial learning theory presents entrepreneurship as a contextual process of becoming, where the entrepreneur is continually learning and developing in

relation to his or her business and the wider environment (Cope, 2005). Whilst certain theorists have acknowledged the importance of cognition (Ravasi and Turati, 2005) and even sought to embrace and extend cognition's toolbox (Corbett, 2005; 2007), at present this relationship does not appear reciprocally balanced. Theories of entrepreneurial cognition seem reluctant to embrace fully the vitality and dynamism of learning in shaping how entrepreneurs make sense of their world (Corbett, 2005).

In understanding the relationship between cognition, learning and knowledge in the entrepreneurial context, Corbett (2005) has made some first steps by suggesting that cognitive mechanisms and heuristics are two ways in which knowledge is put into action. Turning to Kolb's (1984) theory of experiential learning, Corbett provides a convincing argument that the mental processes or "cognitive mechanisms" through which entrepreneurs acquire, store, transform, and use information are the product of an individual learning process. Similarly, Krueger's (2007) work begins to sow the seeds of integration by arguing that the deep cognitive structures underpinning entrepreneurial expertise appear to be learned through trial and error in social settings.

Whilst Corbett (2005) briefly acknowledges that entrepreneurial learning is a social process, we maintain that his theorizing remains under-socialized. He argues that experiential learning theory is both a "cognitive" and "situative" learning theory, where situative learning entails participation in group activities and the strengthening of practices through interaction with others. Thus, "individuals transform (using cognitive properties) their experiences (situative) into new knowledge" (2005: 481). However, the situated nature of experience is not elaborated upon and Corbett's articulation of entrepreneurial learning appears more cognitive than situative. Furthermore, some management learning theorists have argued that Kolb's model is far from relational and sits firmly in the "cognitive psychological tradition" (Holman et al., 1997). Pavlica et al. (1998) argue that Kolb's representation of the learning process portrays the learner as a detached "intellectual Robinson Crusoe". Essentially, Kolb's model remains a highly individualized framework because it focuses on internal cognitive processing through watching, feeling, thinking and doing (Corbett, 2005). More social, relational and discursive processes such as conversing and empathizing do not really feature in this experiential learning framework, thereby sidelining the notion that "argument and debate with oneself (or selves) and in collaboration with others is the basis of learning" (Holman et al., 1997: 143).

This individualized focus similarly pervades a good deal of entrepreneurial learning literature, with many theorists focusing on the individual entrepreneur in relative isolation from the wider socio-cultural context. Extant process-based contributions have focused largely on how entrepreneurs make sense of their experiences and acquire knowledge through internalized, isolated processes (Ravasi and Turati, 2005). This includes how entrepreneurs: mentally rework and transform career experience through exploration and exploitation activities into knowledgeable outcomes (Politis, 2005); absorb and process new information to choose between risky and uncertain alternative and competing actions (Minniti and Bygrave, 2001); engage in critical self-reflection to learn from discontinuous events (Cope, 2003); and utilize different experiential learning modes and personal learning styles to inform opportunity recognition and exploitation (Corbett, 2005). Some entrepreneurial learning theorists are cognizant of such under-socialization in their work. For example, whilst recognizing the importance of social interactions and contributions in shaping how entrepreneurs learn, Ravasi and Turati (2005) explicitly acknowledge that their study only "marginally addresses the issues raised by the collective nature of entrepreneurial learning" (2005: 162).

A noteworthy dichotomy appears if we delve more deeply into this growing learning perspective of entrepreneurship. Another rich vein of theorizing emerges that shuns a cognitive perspective, instead articulating a more relational, situated and collaborative "practice-based" theory of how entrepreneurs learn (Rae, 2004a), where "the working of relationships in the situation of practice determines what is understood by learning" (Devins and Gold, 2002: 113). Rae (2004b) proposes the concept of the "negotiated enterprise", where a business venture is not enacted by one person alone, but is dependent on negotiated interpersonal relationships inside and outside the venture. "Learning networks", both naturalistic and orchestrated, have become increasingly recognized as central to entrepreneurial learning (Johannisson, 2000; Kempster and Cope, 2010). Ravasi and Turati (2005) recognize that learning arises from the interaction of a range of actors including close collaborators within the company and external partners and contacts. Derived from engagement and practice, knowledge then becomes less static and commodified and more fluid and contested (Macpherson and Jones, 2008). Thorpe et al. (2006: 235) eloquently summarize the importance of this practice-based perspective—"the practice of entrepreneurial learning is integral to understanding entrepreneurial activity as a whole and

this learning, being socially embedded, means that the entrepreneurial recognition and pursuit of opportunities is a relational awareness of, and creation of, localized possibilities through the social enactment of cognitions".

Such inherent tensions and contradictions in the literature identified here are, in part, a reflection of more general paradigmatic divisions within the field (Welter and Lasch, 2008). The work of entrepreneurial learning theorists such as Cope, Thorpe and Rae are located within what has been described as the "European" tradition (Hjorth et al., 2008), where there is more explicit emphasis on the socio-economic, historical and cultural context shaping entrepreneurial practice. This emergent "sociology of enterprise" embeds entrepreneurial processes and outcomes in these contexts, in which "entrepreneurship like the rest of social life is a collaborative social achievement. The interaction of entrepreneurs and their stakeholders sustain and transform the nature of entrepreneurship" (Zafirovski, 1999: 196). Theorists describe this as an "embeddedness" perspective of entrepreneurship, in which embedding is the mechanism whereby an entrepreneur becomes part of local networks (Jack and Anderson, 2002). It is this immersion in dynamic social contexts, including the systems, structures and practices that emerge from such participative settings, which shape entrepreneurial agency and influence entrepreneurial outcomes. In viewing entrepreneurship as "relationally and communally constituted" (Fletcher, 2006: 423), individual agency and social structures become mutually constitutive, with the performative role of the entrepreneur predicated on mutuality rather than individuality (Down, 2006). We now turn to the wider practice turn in management and organization studies to present an opportunity for reconciling cognitive and relational conceptions of entrepreneurial learning.

RECONCILING COGNITIVE AND SOCIAL LEARNING PERSPECTIVES

Marrying cognitive and social explanations of learning in this way is of course not without its pitfalls. We are aware of the perceived problems of theoretical and paradigmatic incommensurability underlying the cognitive and social approaches (cf. Gherardi and Nicolini, 2002). As Marshall (2008) observes, "any attempts to suggest that there may be a cognitive dimension to practice are greeted with the charge of cognitivism" (2008: 419). However, for the potential operational benefits for understanding the cognitive and social

dimensions of entrepreneurial learning at the level of mid-range theorizing, we are convinced of the advisability of suspending these concerns. Notwithstanding this qualification, we can also point to others that have followed a similar path in seeking to combine cognitive and social notions of learning (Marshall, 2008; Billet, 1996; Burgoyne, 1995).

Our purpose is to downplay theoretical incommensurability in favor of stimulating pragmatic fusion through engaged conversation. Billett (1996) stresses areas of complementarily between "sociocultural" and "cognitive" approaches with a view to understanding "the nature and possible cognitive consequences of situated learning" (1996: 263). He stresses that situational social factors enable application, appraisal and transformation of cognitive structures and activities. As he concludes, "taken together areas of complementarity between the cognitive and socio-cultural constructivist perspectives enrich these two perspectives, thereby providing a basis for understanding thinking and acting which they could not achieve on their own" (1996: 277). Marshall (2008) claims similar complementarity between cognitive and practice-based approaches. He argues that just as a strong computational/representational view of cognition underplays situated/relational aspects of learning, so practice-based approaches "tend to be rather silent on what it is that people know in order to make them active agents in the reproduction and potential transformation of practice" (2008: 414). Marshall stresses that neither cognition nor practice-based theories need to rely on a strong separatist logic (2008: 416). Reality ascribes a dynamic dialectic between thinking and acting as mediated by situated social relations. In other words Marshall, like us, de-emphasizes theoretically dogmatic approaches apparent within the traditions in favor of discernible pluralities, which are especially pertinent when directed at mid-range theoretical and empirical objectives. More specifically Marshall stresses how cognition can compliment practice-based approaches and "offer a more detailed understanding of how practices are constituted, reproduced and transformed' which doesn't entailed avoiding "reference to patterns, frameworks or models of thinking, collective or otherwise" (2008: 419). We agree that "an interpretive perspective on cognition", emphasizing the "role of interpretive schemas in guiding how unfolding social realities are constituted and enacted" (2008: 419) is an entirely credible position to adopt. By way of re-enforcing his claims, from a more meta-theoretical stance Marshall then explains the integrative potential of his "softer" take on the supposed cognition/practice divide, by stressing elements of a range of theorizing which has sought to explain both agential and

structural aspects of learning-related phenomena in general social theories (e.g. Giddens, 1984; Bourdieu, 1977).

The centrality of participation

The key question then becomes how do we operationalize such a reconciliation and bring together cognitive and practice-based theories of entrepreneurial learning? To achieve these ends we turn to Burgoyne (1995), who redefines Kolb's experiential learning model from a relational perspective. His core argument is that the nature of learning from experience "has moved from one of the individual learning by discovering alone the dynamics of a concrete environment to one of people co-creating the meaning of their shared experience in the world" (1995: 66). For Burgoyne, a collaborative meeting of minds is critical to the creation of both individual and collective learning. Such co-construction is characterized by "active encounters", which form the participative basis of a socialized experiential learning cycle as depicted in Figure 1.

PLEASE INSERT FIGURE 1 HERE

Turning to entrepreneurial learning theory this model enables us to recognize that participation plays a key role in stimulating and revitalizing the entrepreneur's cognitive processes and learning modes that are employed in order to learn and create knowledge (Corbett, 2005). Essentially, it illustrates that entrepreneurs do not make decisions, accomplish tasks and perform their role in isolation. Rather, they cognitively acquire information through engagement in social practices, where practice can be understood as "undertaking or engaging fully in a task, job or profession" (Brown and Duguid, 2001: 203). As Gherardi (2000) stresses, "thinking of learning through participation in practice enables us to focus on the fact that, in everyday practices, learning takes place in the flow of experience, with or without our awareness of it" (2000: 214). If entrepreneurial cognition regards the development of "knowledge structures" (Mitchell et al., 2007), from a participative perspective we can observe the materiality of social relations and the development of knowledge structures *in the doing of action* (Gherardi and Nicolini, 2002). Social engagements form the organising context for learning, with the locus of learning shifting from the mind of the individual to the framework of participation in which it takes place (Gherardi et al., 1998). The situated formation of shared cognitive schema then becomes an

important outcome of participation, as Marshall (2008) explains: "patterns of collective activity are, to some extent at least, enabled and guided by interlocking cognitive schema that are, to a greater or lesser degree, generated, reproduced and modified by people participating in joint activities" (2008: 419).

More socialized depictions of entrepreneurial learning argue that entrepreneurs are embedded in communities of practice (Cope, 2005), in which "employees, managers, regulators, customers, suppliers and other organizational stakeholders *commune* with one another" (Thorpe et al., 2006: 234; italics added). In making sense of learning through participation, Handley et al. (2006) emphasize the centrality of participation to situated forms of learning, arguing that it is through participation that individuals develop their identities and practice. For them, participation becomes relatively simple to define: "it involves action ("taking part") as well as relationships and connections to others in the community" (2005: 649). In this way, individuals maintain a sense of agency through different forms of participation in different communities. Together, these varied works that span both managerial and entrepreneurial learning literatures point to the value of participation in shaping entrepreneurial *practices, identity* and *knowledge*. Vitally, actively engaged encounters form a conceptual bridge between cognitive and socio-cultural theories of entrepreneurial learning. In the following sections we seek to bring these elements of practice-based theorizing into a cohesive organizing framework that places *participation* at its heart.

ENTREPRENEURIAL COGNITION, LEARNING AND KNOWING: AN INTEGRATIVE FRAMEWORK

In this section we outline synergies between practice-based and cognitive approaches to entrepreneurial learning in an illustrative framework. Figure 2 diagrammatically represents how a practice-based theory of participation integrates the triumvirate of practice, identity and knowledge; three conceptual domains crucial to an effective theory of entrepreneurial learning. In the next three sub-sections below we describe in more detail what our framework means for thinking about real-world entrepreneurial activity and learning. In terms of how the framework functions, our intention is not to cede priority either to practice or cognition. Our point is to demonstrate complementarity by suggesting that the cognitively engaged social learning cycle (Burgoyne 1995) and our own participation-centric framework are mutually

supporting. The framework describes a process by which participation is the foundational social fact of human life. However, this does not imply any incompatibility with the notion that human beings actively think about their participation.

PLEASE INSERT FIGURE 2 HERE

Entrepreneurial practice

As the concept of entrepreneurial practice has yet to be fully articulated, it is vital to draw on practice-based literature to inform our understanding of what it may involve. Theoretical translation suggests that what entrepreneurs learn always reflects the social context in which they learn it and in which they put it into practice (Brown and Duguid, 2001). Wenger et al. (2002) identify practice as "a set of socially defined ways of doing things in a specific domain: a set of common approaches and shared standards that create a basis for action, communication, problem solving, performance and accountability" (2002: 38). Interpreting this definition, Down (2010: 129) acknowledges that the practices and networks of different entrepreneurs vary a great deal, and the "common approaches and shared standards" that constitute practice are likely to be determined more by business sector than by some notional adherence to being an entrepreneur. Whilst specific practices may be defined by context, it is apparent that "practice" is sustained and perpetuated through social processes, and it is this performative relational engagement that leads to learning (Gherardi et al., 1998). It would seem that entrepreneurial practice is not only about *doing* social things, it is also about effectively *learning* to do social things; to successfully negotiate engagement in social practice with employees, partners, investors and other external actors. Hence, entrepreneurial practice is moderated through active participation within cultural, industry and other network communities (Rae, 2004b), where other individuals recognize this participation as competence (Gherardi and Nicolini, 2002).

From a cognitive perspective, Baron (2000) argues that social competence is vital for entrepreneurs and that being able to interact effectively with external actors may well increase the likelihood of favorable outcomes. What we begin to discern is that entrepreneurial expertise not only involves cognitively-based expert knowledge structures or "scripts" (Mitchell et al., 2000). Rather, in appreciating the fully situated entrepreneur expertise is also relationally defined through immersion in sustained social practice.

Lévesque et al. (2009) emphasize that the nature and scope of entrepreneurial learning from participation, including vicarious learning from others, can affect the timing of entry into entrepreneurship. They argue that entrepreneurial knowledge and expertise is shaped by participation and interdependencies, "involving reciprocal observation, repetition, and experimentation that increase their confidence in certain actions and improve their ability to make decisions" (Lévesque et al., 2009: 549). Such assertions resonate with practice-based theorizing, where individuals develop practices by observing and imitating others and then adapt and develop their own particular practices to align with those of fellow practitioners within the different communities they inhabit (Ibarra, 1999; cited in Handley, 2005).

From an entrepreneurial learning perspective Rae (2004a) argues that through immersion in practice entrepreneurs develop a theory of "what works", including intuitive and tacit knowledge described simply as "know-how", "know-what" and "know-who" (2004a: 196). From this perspective, practice plays an integral part in shaping different knowledge structures. Adding to an understanding of entrepreneurial practice, Krueger (2007) proffers that "deliberate practice" may play a key role in shaping the expert entrepreneurial mindset, though he identifies a remaining need to specify what entrepreneurs should be deliberately practicing. Drawing on definitions of practice as absorption in social tasks, approaches and ways of doing things (Brown and Duguid, 2001; Wenger et al., 2002), we are encouraged to consider the essential entrepreneurial tasks, approaches and activities that entrepreneurs are (and should be) relationally engaged in.

If we continue with our integrative argument that cognition and social practice are inextricably linked, an obvious starting point is that entrepreneurial practices are part and parcel of the cognitive tasks of opportunity recognition/evaluation, new venture creation and growth (Mitchell et al., 2002). Why entrepreneurs recognise and exploit opportunities whilst others do not has not only become *the* central question in entrepreneurship research (Shane and Venkataraman, 2000), but has also engrossed both cognition scholars (Baron, 2004; 2007; Mitchell et al., 2004) and entrepreneurial learning theorists (Corbett, 2005; Politis, 2005). From a situated, participative perspective the social dimensions of opportunity recognition and exploitation, including the creation of a new venture, take on a new significance. Politis (2005) stresses that start-up, management and industry-specific experience are central to entrepreneurial learning, proposing that the more career experience an entrepreneur has the more effective they are in recognizing and acting on opportunities.

Similarly, Shane's (2000) work has shown the importance of contextualized market experience and knowledge in identifying opportunities. Adding a practice dimension to this we suggest that such situated experience enables entrepreneurs to develop social practices and relational ways of seeing and being in the world that will inform their perception and understanding of opportunity. Moreover, it is through participation in different communities of practice that opportunities will be exploited and the new venture creation process prosecuted.

Despite an acknowledgment of growth, entrepreneurial cognition remains rather skewed towards opportunity recognition and new venture creation. However, Cope (2005) argues that entrepreneurial learning extends beyond venture creation and a key dimension of the learning task is how entrepreneurs learn to manage internal and external relationships as the venture grows. Entrepreneurial practice therefore entails developing approaches to ensuring ongoing productive learning relationships with suppliers, customers and financiers, among others. It would seem that entrepreneurs need to develop the practice of "practical authorship", defined by Thorpe et al. (2006) as "the ability to envisage states of affairs and portray them to others in ways that enlist enthusiasm and participation" (2006: 239). Internally, entrepreneurs must develop practices that manage tensions within the venture that arise from the nature of situated learning. As Macpherson and Jones (2008) highlight, the entrepreneur and other organizational members develop practices through past activities and external community memberships that can cause conflict and require mediation. Thus, a key *internal* entrepreneurial practice during growth and maturity is creating a climate that encourages dialogue within the venture and allows employees to share their tacit knowledge (Jones and Macpherson, 2006). Concomitantly, a crucial *external* practice is building institutionalised social mechanisms for capturing and communicating new knowledge from external sources, including suppliers and customers (Macpherson, 2005).

Entrepreneurial Identity

The second aspect of our framework recognizes that participation in communities of practice is not only the site of learning but a place where self-identities are formed (Lave and Wenger, 1991: 52-54). In learning *about* practices and knowledge individuals also learn how to *be* (Brown and Duguid, 2001: 200). This is because "learning involves the whole person; it implies not only a relations to specific activities, but a relation to social communities" (Lave

and Wenger, 1991: 53). Through participation in communities self-identities are formed via processes of identity-regulation and identity-work (Handley et al., 2006). The former refers to external influences on, and the entrepreneur's responses to, constructing a sense of self, In contrast, the latter refers to "continuous efforts to form, repair, maintain or revise" (Handley et al. 2006: 644) the biographically and discursively constituted self (Downing 2005; Down, 2006). These are the tools by which individuals seek to orient their sense of themselves in relation to developing their participation. Opportunities to learn and participate are assessed in relation to the sort of identity they are constructing, which comprises of a complex array of participation in different intersecting communities of practice, and the engagement with and use of different linguistic resources and dramaturgical presentations (Downing 2005).

The construction of entrepreneurial identity is an emerging conversation among mainly practice-orientated entrepreneurship scholars (Down, 2006; Steyaert 2007). In the main the approach takes a radical social-constructionist approach, which largely eschews all cognition research as an extreme form of dualistic computationalism (Marshall 2008). Though—just as cognitive approaches vary to the extent more practice-based and socialised notions are engaged—the degree to which individual agency is admitted varies widely depending on the specific variant (Steyaert 2007). As we have suggested in the previous section, admission of narrative/discourse does not imply a rejection of interpretive cognitive schemas. It does however require the pluralistic and complementary acceptance of socially constructed participation in communities of practice.

Entrepreneurial cognition and learning has much to gain from an appreciation of identity formation. Down and Reveley (2004) have shown how entrepreneurs in a small firm defined their entrepreneurial activity through self-narratives. The entrepreneurs in this study account for their entrepreneurialism by referring to generational antagonism within a community of practice that stretches over time and space: they were the "young guns" that supplanted the "old farts" (Down and Reveley, 2004). The entrepreneurs had been "stifled by existing practices and opportunities" (Down and Reveley, 2004: 245) and, at least to the extent the identity narrative sustained a distinct sense of themselves as entrepreneurs in the present, describe this generational antagonism as the spur to create a new venture. It is perhaps not too bold to suggest that such antagonism in communities of practice between masters/experts and apprentices/novices might have a general salience in the formation of new ventures. We would not be the first to observe that entrepreneurs are often "pushed" into seeking new

opportunities because of alienation and frustration with extant ways of doing things. Consequently, we maybe try to "change how our community defines competence" (Wenger 2000: 227). If we fail, we might look for new communities, or attempt to form them ourselves. What is original in this view of new venture creation is the dynamic juxtaposition of participation in a community of practice with the identity-work of individuals. Individuals' goal-oriented desires to learn and achieve mastery in a given practice can, if "stifled", act as a transformative and generative spur to form new practices and communities.

Despite their different starting points, supporters of entrepreneurial cognition have also made similar connections between personal identity and learning. Krueger (2007), from a constructivist viewpoint—a perspective which adheres to an individualized cognitive view of the person but recognizes the socio-cultural context in which such sense-making occurs (Fletcher, 2006)—has addressed aspects of entrepreneurial role identity. Role identity emphasizes the mental models of "prototypical" characters such as the "entrepreneur" that are more or less consistently held between individuals. Just as in the practice-based social constructionist approach to self-identity, Krueger is interested in finding out why "certain experiences can have transformative impact" (2007: 127). In particular he has looked at the manner in which entrepreneurial expertise (or "mastery", in practice-based parlance) is learnable (Krueger, 2007: 123).

Despite an unelaborated nod to a more socially constructed version of "self-identity" (2007: 130) Krueger's focus is still predominantly stuck in the individual's mind. Whilst role identity is an important aspect of identity construction, it has been described as a somewhat "static, formal and ritualistic" conceptualization (Davies and Harré, 1991: 43). Therefore Krueger's focus on a need to investigate how "role identity changes as students move from novice to experts" is a good question (2007: 133), but to limit the investigation to those from the cognition toolbox is unnecessarily limiting. This is because role identity itself is a limiting view: Individuals are not simply performing the "role" of the entrepreneur through a *mental* model or script. Rather, individuals perform *through* their interpretation of the role as part of their engaged, relational practice. As Down (2006) has noted, "the term role […] tend[s] to assume a prime status for the narrative equipment of a category over the situated and enacted narrative of individuals. Roles such as mother or entrepreneur are often treated as fixed models rather than being narratively constructed and historically contingent" (2006: 23). The

concept of role identity, whilst complimentary, does not capture the transient nature of self-construction through participation.

Entrepreneurial Knowledge

Prior knowledge has been identified as a key ingredient in recognizing and acting on entrepreneurial opportunities (Shane, 2000), with knowledge acquisition and application becoming an organizing focus for entrepreneurial cognition research. A key argument is that entrepreneurs develop unique knowledge structures and process information differently to other people (Mitchell et al., 2000). Theorists argue that it is possible to assess these knowledge structures i.e. the sum of the entrepreneur's stored information and knowledge, particularly declarative (factual information) and procedural (knowledge of how to do things) structural dimensions (Baron and Ward, 2004: 565). A key contribution of the entrepreneurial learning literature has been to build stronger connections between learning and knowledge creation. As Corbett (2005) has pointed out, cognitive theorizing provides a rich picture of what knowledgeable attributes entrepreneurs should (and do) possess but less about the learning process by which such attributes are acquired. For Corbett (2005), cognitive mechanisms and heuristics are ways in which knowledge is put into action. Learning, on the other hand, is the interconnecting process by which knowledge is *created* from experience (Politis, 2005). For Holcomb et al. (2009) distinctive cognitive heuristics shape the accumulation of new knowledge acquired from both experiential and vicarious learning. Hence, it is clear that we cannot talk about entrepreneurial knowledge or cognition without recognizing the centrality of learning.

What is lacking in both the entrepreneurial cognition and learning literatures is a detailed demarcation between *tacit* and *explicit* forms of entrepreneurial knowledge. At best, tacit knowledge receives only a passing acknowledgement (c.f. Baron and Ward, 2004; Kreuger, 2007; Politis, 2005). Within entrepreneurial cognition, knowledge tends to be viewed in more explicit terms—as a commodity that can codified, stored and accessed to exploit opportunities. This view of knowledge as a rather static property or separate entity has its origins in cognitive science (Chiva and Alegre, 2005), a field that has been instrumental in informing the conceptualization of entrepreneurial cognition (Baron and Ward, 2004). From a practice-based perspective tacit knowledge takes on a new significance and becomes especially relevant within the action-oriented context of entrepreneurship (Cope, 2005). As

Raelin (1997) informs us, tacit knowledge is deeply rooted in action and involvement in a specific context, reflecting "active participation in the situation at hand" (1997: 564). Understanding entrepreneurial knowledge in this way enables us to appreciate that what entrepreneurs come to know is enacted in everyday practices and relations; representing a dynamic *process* which can be viewed as entrepreneurial "knowing-in-practice" (Yanow, 2004). It also forces us to focus on "the knowledgeability of action, that is on *knowing* (a verb connoting action, doing, practice) rather than *knowledge* (a noun connoting things, elements, facts, processes, dispositions)" (Orlikowski, 2002: 250-251).

As our translation of Orlikowski's (2002) work suggests, entrepreneurial knowing is created, reproduced and transformed through ongoing engagement in social practices. At the same time, the "reciprocally constitutive" (Orlikowski, 2002: 250) nature of knowledge and practice means that knowing informs improvisation and reengagement in practice. Ultimately, what we wish to stress here is that entrepreneurs naturally develop what Yanow (2004) describes as "local knowledge", where their embedded expertise "resides in the intimate familiarity with and understanding of the particulars of the local situation" (2004: 12). Entrepreneurs develop deeply contextualized knowledge relating to different communities or groups of actors including customers, competitors, suppliers, investors, etc. After all, this is the situated learning environment within which entrepreneurs function (Gibb, 1997). They may not be able to codify or even verbalize the extent of what they know, but this implicit knowledge will be manifested in an intuitive "gut feel" for what works (Rae, 2004b). Ultimately, we propose that entrepreneurial knowledge is "situated in the system of ongoing practices, it is relational and mediated by artifacts, it is dynamic and provisional, it is always rooted in a context of interaction and it is acquired through some form of participation" (Chiva and Alegre, 2005: 58).

CONCLUSION

Our paper has introduced an integrative framework which reconciles entrepreneurial cognition, learning and knowledge through the application and interpretation of practice-based theorizing. The under-socialization of extant cognitive approaches has been mitigated via conceptual treatment that has sought to emphasize the complementarity of thinking and

socializing. Future development of our framework will seek to illustrate its utility via an application and elaboration of the six specification decisions outlined by Low and McMillan (1988) that all entrepreneurship scholars must consider when proposing new theory.

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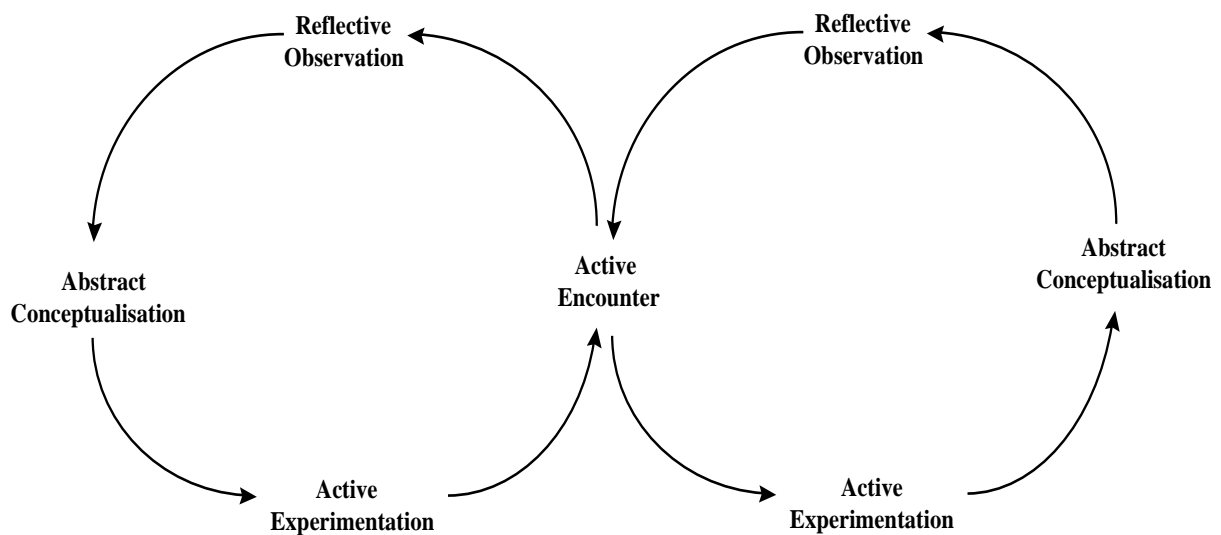
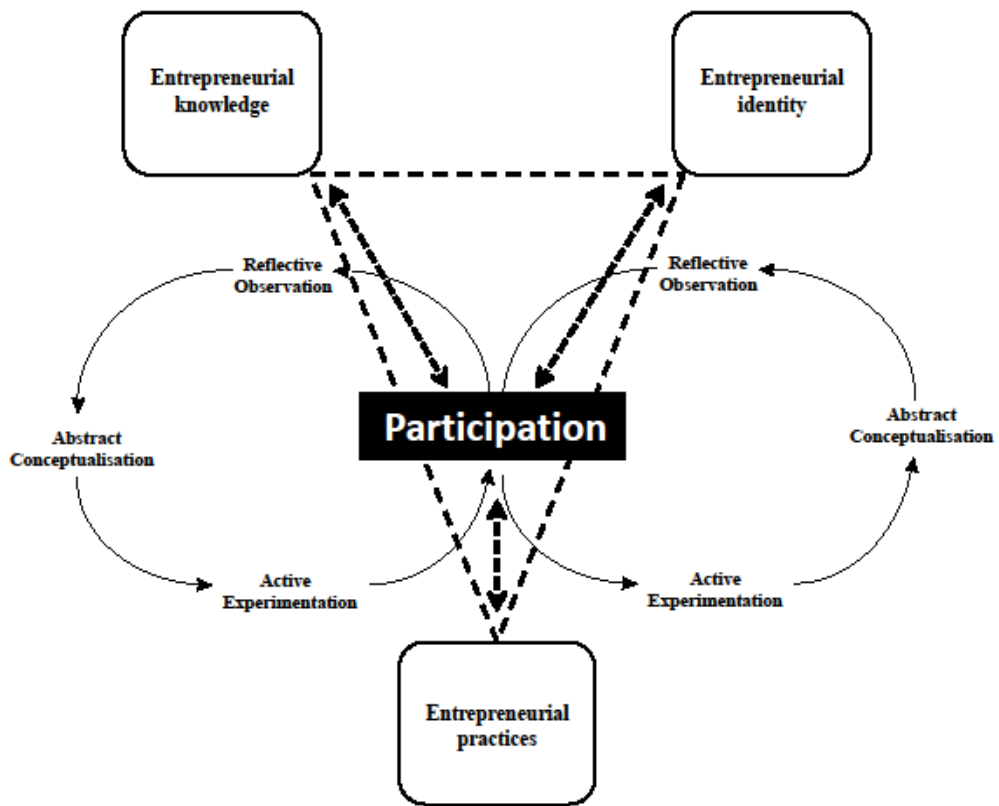Figure 1. *The social learning cycle (from Burgoyne, 1995).*

Figure 2. *Entrepreneurial learning through cognition and practice: An integrative framework (adapted from Burgyone, 1995).*