



# Review of skill and the entrepreneurial process

Elizabeth Chell

*Small Business Research Centre, Kingston University,  
Kingston upon Thames, UK*

## Abstract

**Purpose** – The purpose of the paper is to address the fundamental nature of skill and identify how an examination of skill may be introduced into theoretical understanding of the entrepreneurial process.

**Design/methodology/approach** – The paper undertakes a fundamental review of skill.

**Findings** – Skill is an under-researched construct. Skills once learnt are discounted, undervalued and largely ignored, excepting when they are not executed. Skills are multidimensional and continuous, and context-related. They are not the same as competencies. Skills associated with the entrepreneurial process are primarily theoretical constructs and have been associated with opportunity recognition theory. The initiation of the process through alertness may be challenged and substituted with identification of a social/market valued need. Adopting different paradigmatic approaches to entrepreneurial behaviour yields different issues including problems of measurement and how skills are valued socially, politically and economically. Insufficient empirical research has been carried out to test theory, and identify critical skills.

**Practical implications** – Further empirical research is needed to test and build theory that resonates with practitioner – in particular of the entrepreneur – understanding. Education and training policies should reflect sound theory and practice and where appropriate fund further work on the nature and development of entrepreneurial skills.

**Originality/value** – A fundamental review of skill has not been carried out academically since 1990; this paper is timely as it not only addresses that gap, but develops the work by applying an understanding of the issues of researching skill to the entrepreneurial process.

**Keywords** Skill, Entrepreneurial skills, Opportunity recognition theory, Education and training in entrepreneurship, Education, Training, Entrepreneurialism

**Paper type** Conceptual paper

## Background issues on skills

Much has changed in respect of the concept of skill. At the macro-level, for example, it is some 37 years ago since Harry Braverman highlighted one of the consequences of capitalism, the deskilling of labour and the degradation of work (Braverman, 1974). Deskilling labour means that jobs would require the minimum of skill, of creativity, judgement or problem-solving capability. Wages would then be commensurate with such degraded work. Labour process theory has been heavily criticised in part for the narrowness of its perspective. Furthermore structural changes were occurring in developed economies, which meant that old technologies were being replaced and heavy industry was migrating to countries where labour costs were lower. Now, however, it would appear that the situation has changed again. Government calls for up-skilling not only of the labour force but of young people preparing for the world of work (Leitch, 2006). Leitch addresses the issue of the UK competitiveness head on, making international comparisons with countries as disparate as the USA, Norway and Germany, whose investment in training and human resource development far



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outstrips that of the UK. The argument of Leitch is that only by significantly increasing skills levels will the UK improve its productivity; crucial skills are identified as leadership, management and innovation, which drive productivity-led growth.

The argument for the improvement in the national skills' profile appears to be that to compete worldwide, to innovate and maintain market presence, companies not only need to secure strategic position, but attract high-quality resources, including and most notably, well qualified human capital. This is clearly a general issue and not one that pertains specifically to entrepreneurship and innovation. Skills for entrepreneurship and innovation are likely to be specific to those activities and to aim to produce particular outcomes. The latter vary from business founding, growth and sustainability of an enterprise, to the development of innovative products and services, enabling enterprises to compete locally, nationally or globally.

Research in entrepreneurship and innovation over the past decade has tended to focus on theory-building, developing conceptual thinking about the entrepreneurial process, with, arguably insufficient attention being placed on what entrepreneurs and innovators do and how they do it. This is a further step removed from a consideration of how well they do what they do.

This paper begins to address this gap; that is, that we have lost sight of the meaning of skill and skilled work in entrepreneurship and innovation. It raises complex issues as past papers have signified (e.g. Vallas, 1990), but surely it is timely to review this whole field again from the disciplinary perspective of entrepreneurship. In this paper I shall first re-enter the debate of what is skill, and seek to differentiate research on entrepreneurial competencies from that on skills. Second I shall take opportunity recognition theory as my starting point for the identification and nature of skills in the entrepreneurial process. However, my intention is to critique the theory and by so doing raise deeper issues about the nature of skills from a paradigmatic perspective, and their implications for how skills are valued, measured, and linked to policy.

### **What is skill?**

Leitch (2006) recommends investing in the literacy and numeracy skills of young people to improve their chances of employability; enhance productivity at company-level, and competitiveness internationally. However, whilst literacy and numeracy skills are necessary, they are by no means sufficient. Furthermore, Leitch continued by examining qualifications and those things that can be measured. However, arguably, skills are more broadly based. Qualifications have a large knowledge-content and it is the knowledge which is measured; the skills being subsidiary if there at all. Knowledge of facts – what is the case – is merely one sort of knowledge; knowledge of self – who I am, self-reflection – is a different sort of knowledge, arguably a life-skill, and a first step in relational understanding; tacit knowledge refers to what might be termed “understanding more than one can say” (Polanyi, 1966); and profound knowledge, a depth of understanding of a subject which may facilitate a significant contribution to future innovations. This presents a different ladder for learning; that of life-long learning given the realisation that of never knowing enough or being sufficiently skilful.

Skills are not the same as abilities (Matthews *et al.*, 1992). The exercise of skill produces proficiency at tasks, whereas abilities are akin to more general traits. However, some authors conflate the two arguing that they fall under the general umbrella term of “competencies” and refer to what a person is capable of doing (Mischel, 1973). For research purposes, however, it is clearer to separate the two such

that ability refers to an aptitude that influences a person's skill acquisition to perform a particular task, for example musical aptitude or ability to manipulate numbers, whilst skill refers to proficiency in performance and may be enhanced by practice and training.

Higher order skills enable the realisation of national goals. However, skills tend to be taken for granted; once learnt they are discounted, undervalued and are largely ignored, excepting when they are not executed. Once acquired the skill tends to be assumed implicitly in the action without conscious thought (Polanyi, 1966). Skills are multidimensional constructs; they comprise the cognitive – knowledge and what is learnt; the affective – emotional expression and what is experienced felt; the behaviour – action at strategic, tactical and personal levels; and the context – sectoral, occupational, job and tasks levels, including the breadth, the demands and the inherent responsibilities.

Leitch argued for education in basic skills, but the development of skills is broader and more interesting for it takes in non-formal and extracurricular studies that make the bridge from formal education to vocational training, employability and personal learning. Comprehension of what is read, of literature, historical events and chemical interactions, for example, is already on the syllabus. But there is a wider skill; comprehending what is around one and developing the confidence to move around in the world (Bandura, 1997), but not overconfidence (Busenitz and Barney, 1997). A further skill is that of sensibility. Here I use the term “skill” loosely as sensibility *per se* might better be categorised as a capacity, the capacity of feeling emotion and sensitivity to the feelings of others. The associated skill is that of emotional intelligence which includes both self-awareness of one's emotional reactions to specific events, situations and unexpected circumstances, as well as to other person's and their circumstances, and the coping strategies that may be developed to handle those feelings and concomitant reactions effectively (Boyatzis *et al.*, 2002). The ability of hand-eye coordination also has implications for the development of a skills' set, including that of spatial awareness, angles and sporting prowess. Further in this catalogue of fundamental skills, I would add creativity – imagination and the capacity to envision possibilities. Creativity lifts the person from their present situation to imagine and consider other possible futures; a concomitant of aspiration and ambition enables a person to realise his or her potential and seek to achieve and produce novel products or innovations.

The issue appears to be that of recognition by educators that imparting knowledge is necessary, but insufficient unless accompanied by a broader skills' set for life, employability and innovative capability.

The development of skill is continuous. The identification of fundamental or indeed “basic” skills is problematic and in the education of young people, does not address the “whole person”. Skill is generally thought to encompass talents, abilities and capacities; expertness – the ability to carry out a task in an accomplished way. Expertness thus suggests the notion of mastery (Bandura, 1997) and the possibility that the incumbent has received training to develop the competencies required for successful task completion; competencies moreover that are deemed appropriate for that particular job (Markman, 2007). Such dictionary-style definitions tend to focus on individual-level attributes, blurring the distinction of skill as proficiency at a task, and raise the kinds of questions about the nature of training and person-job fit (Rauch and Frese, 2007a). However, what this implies and is indeed the case, is that skills are variously defined; as technical skills including domain knowledge and know-how, as

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social and relationship skills, where engagement with others is important, and conceptual or “intellective” skills. Surveys of skills require greater precision in definition – a point that will be pursued in more detail below.

Spenner (1990) argues that the concept of skill must be grounded; it is meaningless to talk of skills in a vacuum without reference to context. Here we are concerned with the world of work, preparation for that world, not only at job and management levels but more specifically through the ability to innovate and show entrepreneurial flair. These are the contexts in which we can ask the question; what makes work meaningful? Also, how might jobs be generated? And, what are the implications for the training and development of workforces including management and leaders to this end? Furthermore, and crucially, skills are differentially valued and this has implications for payment and reward.

Social psychological approaches, such as that of Amabile (1983, 1990) have focused on context-relevant factors that affect the expression of knowledge, skills, abilities and motivation on creativity, whilst Csikszentmihalyi (1996) has taken a systems view of the process, separating out the domain-specific knowledge, the person and the field. In general, the knowledge, skills and abilities of entrepreneurs and innovators are many and various, but as with personality traits, they interact with situations (or contextual variables). Situations may be weak, that is, they allow for the expression of the individual difference variable or strong situations that obscure expression of the knowledge, skills and abilities (Mischel, 1973; Chell, 1985). This suggests the need for researchers to be able to accurately measure the nature of situations and their impact on behaviour.

#### *Are competencies different from skills?*

The concept of competency can be traced back to Boyatzis (1982) in respect of effective managerial behaviour and McClelland (1987) who sought to identify a profile of competencies that would lead to entrepreneurial success. Such competencies appear to be a mix of abilities (e.g. “to see and act on opportunities”) interpersonal skills (such as “commitment to others”) and personal attributes (“proactivity”, specifically, “taking the initiative” and “assertiveness”) (see Mitchelmore and Rowley, 2010). It is such a mix which is problematic for proponents of competencies (Bird, 1989). The construct of “competencies” thus appears to be overarching taking in a variety of skills, abilities and other attributes relevant to the execution of a particular task and/or achievement of a particular goal. Its root relates to the notion of being competent or proficient; hence competencies are those attributes which are suitable or indeed fit for purpose, that purpose being task accomplishment. The underlying model is goal-directed and the objective is to identify those skills and abilities (collectively competencies or lack of them) that facilitate entrepreneurial success or failure (Bird, 1989).

McGrath *et al.* (1995) analyse competence at team level; their analysis reflects that of individual-level approaches discussed above. Their model comprises four conceptual elements that they suggest lead to enhanced business performance: comprehension or understanding; deftness, that is operating smartly; yielding reliable, efficient and effective task performance that results in strengthened competitive advantage and consequently enhanced business performance. In general the broader theory of competencies includes practical guidance aimed at business outcomes; in nascent enterprises the idea is to address issues of failure by identifying those competencies which will enable young or nascent entrepreneurs to be more effective in business start-up (Bird, 1989; Markman, 2007).

Competencies have been related to stages of business development and growth hence indicating the need to relate the particular competency to a context, set of tasks and performance outcome (Bird, 1995; Baum *et al.*, 2001). Competent entrepreneurs arguably are able to better develop and exploit perceived opportunities, develop more suitable strategies and as such are more likely to perform effectively (Bird, 1995; Mitchelmore and Rowley, 2010).

Markman (2007) makes a case for further research in entrepreneurial competencies at the individual level. Context is important in that for start-up businesses and nascent entrepreneurs, the situations faced are largely chaotic and in psychological terms weak. Competencies, which he defines as knowledge, skills and abilities (KSA), are more likely to be expressed effectively in such weak situations. Markman advocates the combination of individual factors to address successfully opportunities – a key element in the theory. Knowledge for entrepreneurs and innovators is specialised, may be prior knowledge (Shane, 2000), builds on experience (Shepherd, 2003), technological or intellectual property (Shane, 2001a, b) and be unique, that is inimitable (Marsili, 2002). The point is that knowledge in respect of innovation and entrepreneurship should be rare, valuable, difficult to imitate and confer competitive advantage (Alvarez and Busenitz, 2001). Furthermore, while skills and abilities are interrelated for theoretical reasons it is appropriate to treat them separately. Thus, skills are the product of lifelong learning and practice, abilities are not; skill is predicated on ability.

Markman's identification of entrepreneurial skills is circumscribed by his focus on business creation and opportunity recognition theory. Such skills may be technical (as in science and technology-led businesses), conceptual, such as to recognise and evaluate opportunities, or process trends in an industry or market; and human skills such as to handle relationships inside and outside the venture, to lead and motivate others, and networking skill. However, he acknowledges the importance of later phases in business creation, necessitating the skills to marshal resources to exploit those discoveries. Abilities, on the other hand, Markman theorises capitalise on knowledge, ensuring that it is absorbed, comprehended and utilised. Again these abilities are cognitive and opportunity focused.

Markman's (2007) theory of entrepreneurial competencies is at a high order of generality and as such it does not tackle some of the difficult issues comprising measurement, specificity, or the identification of competencies which are difficult to observe (e.g. creativity). By using an umbrella term like competency, it is likely to cause confusion such as the difference between an individual's capacity to perform a task competently (his/her competence) and competency, a particular skill, ability or knowledge quality possessed by an individual. For research purposes in particular empirical testing it might be argued that it is better to identify knowledge, skills and abilities as separate entities (Drakeley and White, 1999; Moloney, 1997) and build theory around those particular factors.

Mitchelmore and Rowley (2010, p. 100) suggest a competency framework, comprising four categories: entrepreneurial competencies, business management competencies, human relations competencies and conceptual and relationship competencies. There are six so-called entrepreneurial competencies identified which overlap to some degree with entrepreneurial skills but also indicate the issue of level and source of the competence. Such competencies do not necessarily reside with the entrepreneur but may be located at team or firm level. This raises measurement issues for researchers and should be linked to the phase of entrepreneurial start-up and

development. Certainly there are scales available (e.g. Orser and Riding, 2003) but researchers need to be clear about the objectives and research design, as well as the issues raised in this paper before embarking on a search for entrepreneurial competencies and their impact on performance.

### **Business creation and an appropriate skills' set**

The dominant theory in entrepreneurship is that of opportunity recognition with considerable research directed at identifying and understanding the (in particular) cognitive capabilities of entrepreneurs in this process (Timmons *et al.*, 1985; Timmons, 1989; McClelland, 1987; Kaish and Gilad, 1991; Chell, 2008; Chell *et al.*, 1991; Alvarez and Busenitz, 2001; Gaglio and Katz, 2001; Gaglio, 1997, 2004; Baron, 2000). This approach is posited on; information processing and interpreting, envisioning, counter-factual thinking, and the ability to think through the means-end framework from opportunity recognition to successful exploitation. Other skills are required to ensure effectiveness over time that will result in desired outcomes (product/service innovation, business creation, etc.). Krueger and Brazeal (1994, p. 91) remind us that “entrepreneurship” is defined as “the pursuit of opportunity irrespective of resources currently controlled (Stevenson *et al.*, 1989)” and “entrepreneurs” as “those who perceive themselves as pursuing opportunities”. In an attempt to reach scientific consensus, this definition has predominated within a positivist, socio-economic paradigm of entrepreneurship. The process comprises the following phases:

Opportunity recognition/identification ⇒ opportunity formation/  
development ⇒ opportunity exploitation ⇒ outcome(s)

Table I includes research that has been conducted in respect of the skills drawn upon during this process. The table is not comprehensive but indicative of a wide range of “skills” that purportedly are associated with entrepreneurship and innovation. These skills and person attributes are primarily cognitive (rows, 3, 4, 5, 6, 12 and 22), personality related (rows, 1, 2, 9, 13 and 17), social and interpersonal (10, 11, 14, 15), business specific (rows 7, 18, 19, 21), motivational (row 20) and learning (row 16). However, different theoreticians emphasise different combinations of person attributes, behaviours and skills as illustrated in the reference column. The emphasis on the cognitive capabilities is a reflection of the dominance with which opportunity recognition theory has held sway. However, when we look closely at these papers the vast majority is concerned with theory-building and we are hard-pushed to find papers which test the theory; some exceptions include the work of Baum and Locke (2004a, b) and Shane (2000).

Shane (2003) reports evidence in support of various aspects or phases of opportunity recognition theory, but not research that has tested the theory as such. For example, Shane (2003, p. 251) illustrates the entrepreneurial process in six phases that result in “performance” (of what is not specified). He labels Phase 2 as “the discovery of opportunity” but does not explain how opportunity recognition is now separate from the context, the individual factors, environmental factors and so forth. Surely if this model is to be meaningful from a positivist perspective (the paradigm that Shane is working within), then all the phases in the process to the performance outcome are a part of opportunity recognition theory otherwise how can it be tested? And if it cannot be tested then it is neither verifiable nor falsifiable.

Behaviour/skills	Expert term	Research source
Innovative/creative ability to generate novel ideas; ability to envision possibilities	Creativity/imagination/vision/foresight	Amabile (1983, 1990), Ardichvili <i>et al.</i> (2003), Csikszentmihalyi (1996), Hills <i>et al.</i> (1997), Locke (2000), Locke and Baum (2007), Rubenson and Runco (1992), Sternberg (2003), Sternberg and Lubart (1995, 1996), Kirton (1976, 1980) Baron (2000); Gaglio (1997, 2004); Gaglio and Katz (2001), Kirzner (1979, 1997), Shane (2000, 2003)
Recognition of opportunity and ability to work out the means-end framework	Alertness; counterfactual thinking	Amit <i>et al.</i> (1993), Nightingale (1998), Baron (2004), Frese (2007), Marsili (2002)
Identification of opportunity; ability to perceive patterns in information in a given environment	Tacit knowledge; pattern recognition; prototyping	Gaglio (2004), Gaglio and Katz (2001), Kirzner (1979)
Awareness of factors conducive to opportunity exploitation	Veridical perception, interpretation, and discernment	Cohen and Levinthal (1990), Shane (2000, 2003), Amabile (1983, 1990), Ardichvili <i>et al.</i> (2003), Sigrist (1999), Zucker <i>et al.</i> (1998)
Prior knowledge pertinent to identification of opportunity; including the ability to acquire further information about a potential opportunity; domain knowledge and associated skills	Absorptive capacity Domain knowledge	
Recognition of social need/market need	Social/market knowledge	Ardichvili <i>et al.</i> (2003), Harper (1996), Shane (2000, 2003)
Ability to garner necessary material resources	Prior knowledge Resourcefulness	Brush <i>et al.</i> (2001), Stevenson <i>et al.</i> (1985, 1989), Timmons (1989), Wu (1989)
Ability to convince others of value of opportunity	Persuasiveness; social skill; leadership	Jack and Anderson (2002), McClelland (1987), Witt (1998)
Self-belief, self-awareness and ability exert influence and create change	Self-efficacy	Bandura (1997, 1999), Boyd and Vozikis (1994), Chen <i>et al.</i> (1998), Krueger and Brazeal (1994), Markman <i>et al.</i> (2002, 2005)
Trust in own judgement; trusting	Self-confidence; trust Over-confidence	Chandler and Jansen (1992), Chell and Tracey (2005), Locke (2000), Busenitz and Barney (1997), Simon <i>et al.</i> (2000)
Ability to manage other people	Interpersonal skill; leadership	Baron and Markman (2003), Witt (1998)
Ability to differentiate amongst opportunities/information	Judgement	Casson (1982), Chell (2008), Frese (2007), Gaglio and Katz (2001)
Ability to manage risk and shoulder responsibilities in conditions of uncertainty	Risk-propensity; responsibility	Christiansen and Bower (1996), Harper (1996), Hoy and Carland (1983), Miner and Raju (2004), Timmons <i>et al.</i> (1985)

**Table I.**  
Entrepreneurial skills and abilities and the entrepreneurial process

(continued)

Behaviour/skills	Expert term	Research source
Networking and social embedding	Social competence; networking capability	Aldrich and Whetton (1981), Aldrich and Zimmer (1986), Ardichvili <i>et al.</i> (2003), Baron and Markman (2003), Birley (1985), Chell and Baines (2000), Jack and Anderson (2002), Johannisson (1995), Baron and Markman (2003), Harper (1996)
Ability to overcome institutional and other constraints	Political astuteness	Baron and Markman (2003), Harper (1996)
Ability to learn the “rules” and make the right move at the right time	Social learning; adeptness	Argyris and Schoen (1978), Bandura (1997, 1999), Chell (2008)
Ability to endure and cope with difficulties	Resilience	Shapero (1975), Rabow <i>et al.</i> (1983)
Able to apply appropriate skills associated with different stages of business and drive its development forward	Multi-skilled: flexibility; dynamic capabilities	Amit <i>et al.</i> (1990), Davidsson and Honig (2003), McClelland (1987), Timmons <i>et al.</i> (1985), Zahra <i>et al.</i> (2006)
Ability to develop an idea as commercial opportunity, applying the appropriate resources; ability to plan and think ahead	Business acumen; business planning	Arrow (1974), Chandler and Hanks (1994), Frese (2007), Stevenson and Jarillo (1990), Venkataraman (1997), Wu (1989)
Able to go the distance, energetic, motivation and effort expended	Commitment, stamina, energy, effort, motivation, achievement motivation, passion	Timmons <i>et al.</i> (1985), Bird (1989), Boyd and Vozikis (1994), Baum <i>et al.</i> (2001), Baum and Locke (2004a), Locke and Baum (2007), McClelland (1961), Miner <i>et al.</i> (1989), Naffziger <i>et al.</i> (1994)
Able to grow and sustain the enterprise	Strategic competence	Reynolds (1987), Reynolds and White (1997)
Decision-making capability	Decision making; problem formulation and diagnostic skills	Casson (1982, 1995), Schwenck (1988), Schenkel <i>et al.</i> (2009), Wu (1989)

Table I.

Chalkley (2011) has mounted a critical review of opportunity recognition theory, which has implications for this review of skills. Her critique states that the language of opportunity recognition is alien to practitioners and as such has little validity or credibility. Furthermore, the conceptual framework and assumptions made by different proponents of opportunity recognition theory differ significantly (e.g. Carolis and Saporito, 2006; Dutta and Crossan, 2005; Gaglio and Katz, 2001; Park, 2005; Shane, 2003). Dimov (2011, p. 59) also charges opportunity recognition theory with incoherence and, from a positivist perspective, its inoperability for empirical testing. Fletcher (2006, p. 425) makes the point that opportunity recognition theory assumes “special skills in ‘seeing’, identifying and selecting from a range of opportunities”. She suggests, moreover, that the balance between individual agency and the cultural, economic and social-structural environment may be misconceived. Such criticisms not only have crucial implications for the soundness of underlying theory, but also the



practical and policy implications of what skills and behaviours are needed in the entrepreneurial process, the embeddedness of the business idea and the relational nature of the process.

Parkinson and Howorth (2008, p. 300) pursuing a discourse analysis of social entrepreneurs' enterprise language found that "social entrepreneurs were driven by obligation rather than opportunity", that "opportunity was rationalised as need", "there was little emphasis on outcomes" and they note, "[T]he lack of any emphasis on the future or opportunities is of interest". This echoes Haugh (2007) when she talks about a "felt need". Hindle (2010, p. 609) adds support to Chalkley's concerns by putting forward a definition of entrepreneurship that emphasises "evaluating [...] the creation of new value"; this proposes that a practicing entrepreneur mulls over a possible opportunity "into some kind of blueprint for action". However, although Hindle (2010, p. 610) suggests otherwise this redefinition does not avoid the paradigmatic dilemma raised by the objective-subjective existence of entrepreneurial opportunity. We might add to these concerns, by observing that the identification of "alertness" by (primarily) economists such as Kirzner, as a crucial trait that distinguishes between entrepreneurs and non-entrepreneurs lacks validity. Kirzner's position is critiqued by Lavoie because alertness is not simply seeing an opportunity, but requires interpretation of the perception. Steyaert (2007, p. 460) criticises Kirzner further for his methodological individualist stance divorced from a "culturally embedded context". Furthermore, Chalkley argues the concept of "opportunity recognition or alertness" misunderstands the motivations of entrepreneurs which are, to create a business and the skill associated with this, she suggests, is primarily that of problem solving.

In general, what is apparent is that theoreticians have explored business creation through the lens of opportunity recognition and have taken the theory in different nuanced directions. As such the behaviours identified and measured, explored in journal papers, have produced or implied different combinations of skills coherent with their theory, but the lack of agreement between theoreticians brings into question any practical knowledge produced. It is entirely possible that the entrepreneurial process of, let us say, business creation rather than opportunity recognition is of such complexity that the requisite skills' set is extensive; and varies due to variations in contexts and situational cues. But there does appear to be a problem with the theoretical framework of opportunity recognition and this indicates that considerably more work is needed to produce a coherent theory that has practical validity.

Nightingale (1998) illustrates a potential problem with opportunity recognition theory through his development of a cognitive model of the process of innovation. His criticism is that of a linear sequence of innovation which he argues in any event flows in the wrong direction. If we apply the same logic to opportunity recognition theory following economists such as Kirzner, we have the following linear sequence:

$$\begin{array}{l}
 \text{Alertness to opportunity} \Rightarrow \text{develop/evaluate} \Rightarrow \text{exploit} \Rightarrow \text{outcome,} \\
 \text{product/service,} \\
 \text{Time : } t_0 \quad t_1 \quad t_2 \quad t_3 \quad t_4
 \end{array} \tag{1}$$

In Equation (1), the start point, the entrepreneur is alert to an opportunity or rather an idea, but its value is not known. The next step should be to evaluate the idea as a market opportunity and then to work out the means for its exploitation. Conceptually one problem with this as a business model is that ideas are legion, thus by commencing

with alertness to an idea at the outset, it fails to distinguish between good ideas that have perceived value and thus potential and poor ideas that are likely to result in business failure. Not only is the start point wrong but so is the identification and application of appropriate skills.

In contrast, Equation (2) below, the desired end-state is identified (e.g. cure for disease X, a social/environmental enterprise, or “must-have” gizmo) and is known to be of value; the resource configuration or pattern of business activity appropriate to the context or sector is then figured out and a business created around the means whereby the product or “desired end state” may be produced. This has considerable implications for the nature of the skills’ set of entrepreneurs, with the initial idea being based on profound knowledge derived from experience and education. Likely contenders brought into play are business and other sector specific skills and knowledge:

$$\begin{aligned} \text{Desired end-state : Social/Market need} &\Rightarrow \text{based on (tacit)} \\ \text{knowledge/understanding} &\Rightarrow \text{resource configuration} \Rightarrow \\ \text{plan} &\Rightarrow \text{business creation/outcomes} \end{aligned} \quad (2)$$

The “perception of ideas as opportunities that may turn out to be lacking in business potential” is not the only problem with assumptions implicit in Equation (1). Proponents of this theory presume its veracity, then go on to ask the question: “why is it that some people recognise opportunities and others do not?” (Baron, 1998; Mitchell *et al.*, 2002; Markman, 2007) thus reinstating the notion that some people are born with a special person attribute, namely, cognitive capability that enables them to be alert to opportunities. If this were the case then surely the failure rate amongst business start-ups would be greatly reduced. What appears more likely as an explanation and theoretical underpinning of a successful entrepreneurial process is that entrepreneurs have domain knowledge that facilitates the identification of value. The greater the perceived value in the desired end state, the more likely that backing will be forthcoming to develop the market potential for the product or service. This is not a matter of semantics substituting “value” for “opportunity”. Understanding that there is a need (social and/or market) and that it has a value is the start point in the alternative Model 2 (Ardichvili *et al.*, 2003; Austin *et al.*, 2006; Chell, 2007; Nightingale, 1998). Indeed, Ardichvili *et al.* (2003, p. 113) suggest that it is not so much that opportunities are “recognised” but that they are developed from sensitivity to market need – a further skill. Why therefore the theoretical requirement of assuming alertness or indeed using the language of “opportunity”? Domain knowledge and experience enable us to explain profound understanding of a market and/or social need and the often associated tacit knowledge referred to by many researchers of innovation and entrepreneurial capability (Allinson *et al.*, 1996; Marsili, 2002; Sigrist, 1999, quoted in Ardichvili *et al.*, 2003).

Opportunity recognition theory within the entrepreneurial process fails to identify correctly the elements of the process and the skills and knowledge associated with it. Arguably there is a case for simplification. In the critique above an alternative has been put forward which would dispense with concepts such as “alertness” and “opportunity” and focus on social/market need and the means to that end (in entrepreneurship) of business creation. However, there is a further complicating factor from a research perspective and that is that the research discussed in this section has assumed the tenets of positivism. In the ensuing section we will look more closely at

### **Paradigmatic and concomitant research approaches**

The dominant paradigm for researching skills is positivism, though increasing criticisms have brought other paradigms to the fore in particular social constructionism. In its traditional form positivism has assumed a one-to-one correspondence between the researcher's observation and the observed, and the idea that the researcher's position is that of objective observer. Social constructionism, on the other hand, assumes that within the social world everything that people (including researchers) see in the social world is framed by their perceptions, and it is these perceptions that introduce subjective interpretation into social scientific "discoveries" or preferably, referred to as "insights". Realists take a middle way, in that they acknowledge the perceptual framing of social phenomena but assume that there is an underlying reality, which presumably through stringent research methods may be identified or "discovered". These ontological assumptions about the nature of being are crucially important not only for the conduct of research, but also interpretation and understanding of the findings from research concerning skills' sets in entrepreneurship and innovation.

Spenner (1990) summarises the issues that the assumptions underpinning paradigmatic approaches pose; this exposition provides a critical basis for evaluation of subsequent research of skills. The dominant paradigm – positivism – raises the issues of precise definition and conceptualisation of the skill, its objective measurement and the issue of causation, that skill (or skilled behaviour) results in outcomes such as direct and measurable improvements in job-performance, which is posited to have indirect effects on organisational outcomes (Baum and Locke, 2004a; Chen *et al.*, 1998). Research models in this vein may include a variety of human capital factors, such as education, experience and training (Davidsson and Honig, 2003), mediating variables, such as role, say entrepreneur, manager, or innovator, and context, for example, size of firm, sector, organisational culture and climate (Baum and Locke, 2004a).

The key issue highlighted by Spenner is that of how skills are valued, and that this valuing of skills is not an objective process, but is socially, politically and economically framed. He illustrates this with reference to theoretical positions taken such as deskilling or upgrading; demand-side (theory of the firm) vs supply-side (human capital) perspectives; the adoption of market mechanism arguments, including the need for greater efficiency and return on capital to evaluate the effectiveness of skill and the evaluation of training for improvements/changes in the skills' profile of a workforce which argument may also be extended to include the training of the entrepreneur or innovator; or labour process perspectives that focus on managerial control, issues of power and critical change (Willmott, 1987; Alvesson, 1996). Whilst this body of literature is outside the scope of this paper, it provides a useful context to understanding theoretical perspectives on entrepreneurial skills. At a general level it is useful to outline those issues identified by, and based on, Spenner (1990):

- (1) What are the theoretical bases of skill? Does skilled performance concern self-fulfilment? Is there a balance to be achieved between conception and execution of a task? Is skilled performance simply a means to an end – recognition, reward, or defining one's place in the world?

- (2) What is the locus and nature of the mechanisms of skill valuation? How is skill valued, and by whom, through what theoretical perspective?
- (3) How are skills socially constructed and defined?
- (4) What are the postulated dimensions of skill?

Table II summarises some of the key dimensions of, and contrasts between, positivist, cognitive realist and social constructionist approaches. Cognitive realist approaches differ from the positivist in that they acknowledge the possibility of ideological construction of skills but seek to identify an underlying structure. Social constructionism assumes, however, that skills and associated behaviours are socially constructed and differentially valued by socio-political groups within organisations and society. Examples such as women's greater difficulty in obtaining funding for their entrepreneurial ventures indicate that women's entrepreneurial skills are considered by some to be of lower value (assumed to be less effective in achieving performance outcomes presumably) by venture capitalists, bankers and other potential support groups. This is in part related to the under representation of women in positions of influence, in networks and power positions within organisational hierarchies (Aldrich, 1999, p. 85; Carter, 1994; Spenner, 1990; Sternberg, 1990). Hence the social construction of one's reality must take into account the constraints of a person's social and physical reality. Notwithstanding this Aldrich *et al.* (1996) found that women were identical to men in the use of network ties, and pursued such ties just as aggressively. However, there remain issues of the adoption of gender norms to label and attribute roles and behaviours to men and women (Calás, 1993), for example, men being more likely to be perceived as having leadership skills, and women forming trust relations to avoid risk (Uzzi, 1997).

There is growing support for social constructionist (and social constructivist) approaches to entrepreneurship and innovation (Chell *et al.*, 1991; Bouchikhi, 1993; Chell, 2008; Chell and Baines, 2000; Down, 2006; Downing 2005; Fletcher, 2006; Goss 2005; Karataş-Özkan and Chell, 2010). There are subtle variations on different social constructionist theories. Bouchikhi (1993) argues that the entrepreneur cannot be differentiated from the context; a theme that feeds into work that proclaims the essential embeddedness of entrepreneurs (Jack and Anderson, 2002). Chell and Baines (2000) builds on this, emphasising the notion of entrepreneur as active agent fashioning his/her reality. Giddens' structuration inspired theory of entrepreneurial process (Chiasson and Saunders, 2005; Sarason *et al.*, 2006, Mole, etc.) sees the entrepreneur (agent) and opportunity (structure) co-evolving. Sarason *et al.* (2006, p. 291) identify an "inherent characteristic of human agency" as reflexive monitoring. This enables agents to observe and understand what they are doing whilst they are doing it. This behaviour includes "the continuous monitoring of physical and social contexts and activities [...] as well as the continuous adjustment of one's actions" (Giddens, 1984, p. 5). These authors note that whilst the behavioural perspective highlights "an entrepreneur's cognitive structures that influence the interpretation of social systems [...] [Structuration] includes the ability to reflect upon and modify interpretations". The nature of structures, according to Giddens, is that they are rule-governed; thus entrepreneurs as agents would need to learn the rules if they are to engage with the structure. This begs the question whether the entrepreneur assumes a set of extant rules or creates those rules, that is to say, a *modus operandi* as he/she sees fit. As argued above, "structure" has no existence independent of the knowledge of

**Table II.**  
Paradigmatic approaches  
to skills in the  
entrepreneurial process

Dimension	Positivism	Cognitive realism	Social constructionism
Disciplinary base Theoretical frame	I/O psychology, economics E.g. trait theory, human/social capital theory, competency (KSA) theory, equilibrium theory	Applied psychology, business economics E.g. cognitive psychology, entrepreneurial cognition theory, cognitive decision-making theory, information-processing theory, resource-based theory	Sociology Phenomenology, structuration theory, radical humanism, Marxian theory
Ontology	Entrepreneurial skills have a tangible existence and objective reality. What is seen by the researcher corresponds with their reality	There is an underlying cognitive information- processing mechanism which controls skills performance; however, the observation of the skill is through perception	Skill is constructed and framed by the observer. The framing comprises a valuation of the skill which depends on the socio-economic and political assumptions of the observer
Epistemology	Entrepreneurial skills may be observed, interpreted and measured veridically by the researcher	The nature of entrepreneurial skills may be determined and measured through empirical research	There is a large difference between observed skill and true underlying skill; this is a function of non-random errors due to framing. A problem is then that of considering the extent of the impact of ideology and framing-induced errors
Human nature	Seeks causal connections between object and effect, e.g. skills and performance outcomes	Seeks connections between the perceived skill and real underlying causal framework	Skills are constructed within a socio-economic and political framework, which may differentially value the skills of different subjects
Methodology	Adopts a nomothetic approach based on the scientific method; assumes that skills are measurable, producing data that are hard, tangible facts. Seeks to measure and produce generalisations about the impact of skills on performance at task or other levels	Primarily nomothetic, but may use mixed methods, accepting that skills are in some sense socially/ ideologically constructed, but believing that it is possible to measure an underlying core – true skill	Primarily ideographic, focuses on individual cases to glean insights; may use emic accounts and case study method
Observed behaviour/model	Focus on process, contexts, mediating/ moderating variables and outcomes	May combined focus on process as with positivists, with qualitative design work to consider elements of the construction of skills in particular contexts	Variable, dynamic and emergent as the subject negotiations his/her situation and skilfully or otherwise deals with tasks at hand
Mediating factors	Examples, goals, resource constraints, strategies adopted, role of others	As with positivists	Social context may be infinitely variable, but ideology and power are deemed to be significant factors that shape the construction and valuation of skill
Critical issues	Problem of measurement and agreement on definition and identification of which skills are crucial in the entrepreneurial process	Similar problems to those of the positivists; allowance for the construction of skills in certain specified contexts will reduce generalisability but produce explicable results in specific, well defined contexts	Produces insights into the socio-political valuing of skills of e.g. minority groups; should produce explanations of why various social groups' entrepreneurial skills are undervalued and consequently have greater difficulty garnering resources such as finance in start-up mode

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agents, i.e. the entrepreneur. Likewise agents can only be understood through their engagement with “the structure” which reveals their day-to-day activities.

Whilst Sarason *et al.* characterise the structure as “the opportunity” others might characterise it as the business creation process, but the point that Sarason *et al.* emphasise that is consistent with social constructionism is that the structure is a “singular phenomenon”; this is in direct contrast to the positivist position in which opportunities are characterised as objective and independent of the entrepreneur, whilst the term “opportunity” is used within the entrepreneurial process as if it is the same for all.

Karataş-Özkan and Chell (2010, p. 30) argue that entrepreneurship is a “processual phenomenon” that locates entrepreneurs in a contextual framework of “events, circumstances, situations, settings, and niches”. Within this process is the relational dimension of entrepreneurial behaviour (Johannisson, 1995), thereby emphasising its social nature (Aldrich and Zimmer, 1986; Chell and Baines, 2000; Johannisson, 1995) and has a strong networking aspect to it (Jack *et al.*, 2008). Combining these two in the process-relational approach emphasises the emergent characteristic of the process through engagement with structure and the human relationships involved in the process. Engagement with the structure theorises the dynamic nature of the entrepreneurial process, the constant flux and unpredictable change, and the engagement with others in the process in order to gain insight and further understandings that underpin decisions and action. Fletcher and Watson (2003) emphasise that this process is a part of the social becoming of the entrepreneur, while Goss (2005) reminds us of the importance of feelings and emotions in the process of engagement. Moreover relationships highlight how group and teams come together within the process, and in many cases communities (Fletcher and Watson, 2003).

The creative aspect of the entrepreneurial process is also identified by many social constructionist writers (Steyaert, 2007; Hjort, 2003a, b, 2004). Johannisson (1995) emphasises creative enactment through the interplay of individual and collective forces. Bouwen and Steyaert (1990) theorise about the creation of organisational “texture” in the process of entrepreneuring which is both a relational and a “dialoguing process” of organisational emergence, steered to some degree by the motivation and competences of the entrepreneur. Several writers emphasise the creative process within the enactment of entrepreneurship e.g. Harryson (2008) conceptualises the entrepreneurial process as one through which relationships navigate from creativity to commercialisation. The creative phase is characterised by a creator with visionary leadership, while the later phase of exploitation requires innovation through understanding of social needs and market requirements.

### **Measurement issues**

The adoption of a particular set of paradigmatic tenets depends in large part on the research questions being asked and the nature of the extant conceptual framework, that is, the extent of its development and corroborative support from other scholars. However the scientific method and positivist paradigm deals in probabilities not certainties; the theory may always be questioned, revised, discarded as appropriate. Opportunity recognition theory and purported associated skills is, as argued and demonstrated above, in need of some revision. Social constructionism and qualitative methods, including narrative analysis, could usefully address some of the concerns, in particular the language of business creation by entrepreneurs.

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Spenner (1990, p. 401) makes additional contrasts between positivist and social constructionist. There is the philosophical point about how skill is viewed in relation to human nature; is it viewed as a “good thing” – a means of balancing the physical and mental, the conception and execution? Has the notion of “deskilling” been relegated politically and economically as demand for higher order skills take precedence on a global stage of competitive forces? Does this not mean that education should attend to this national need and provide the means for skills development and recognition within broader more practically oriented syllabi? This also begs the question of skill valuation from those demanding skills, as resources to improve firm performance, and those supplying the skills as human capital. How do market mechanisms broker these relations, providing a means of valuing the skill? The supply of entrepreneurial and innovation skill is valued under certain economic conditions – the need for market growth, employment and competitiveness. However, within such theoretical perspectives skill is viewed as an “objective good” that can be measured. In stark contrast, social constructionist, radical humanist and radical structuralist perspectives would view entrepreneurship and the skills associated with it as part of the logics of capitalist control, exploitation and evaluation. Skill would be viewed as subjective, constructed “requiring measurement of that which is valued along with that which is not valued or devalued” (Spenner, 1990, p. 401).

Following from these points, the question is the extent to which entrepreneurial skill is socially constructed and defined. Criticisms of methodological individualism that has focused on the attributes of entrepreneurs, presenting them in heroic terms (Ogbor, 2000) or giving them predominantly masculine profiles, have laid bare the need to question assumptions, attend to the perspectives of interested parties and any underlying issues of power and control.

Further, positivists would argue that the extent of measurement error in respect of skill is likely to fall within confidence boundaries and therefore any measure taken would be of true skill. Social constructionists in contrast would argue that the subjective element was the larger proportion of that which was being measured. Moreover, they would suggest the presence of non-random errors of measurement, due to the subjective nature of the skill valuation process or as Spenner (1990, p. 401) puts it: “over- or under-estimation of true skill conditional on the winner of the skill construction contests”.

On the whole skills tend to be viewed and measured as if they were uni-dimensional constructs. However this appears to be a profound mistake, which researchers in entrepreneurship and innovation have not entirely got to grips with. For example, for decades entrepreneurs were thought to be “calculative risk-takers”; non-entrepreneurs were not. But this makes little sense, whilst there are some claimants that risk-taking propensity is a uni-dimensional skill that can be measured as such, there is increasing evidence of the multi-dimensional nature of this skill on a number of fronts: people differentiate between domains such as health, finance, safety; contexts, such as task demands, pressure or urgency, availability of information and features of the problem (Nicholson *et al.*, 2005). Different people are said to frame risk differently, for example, entrepreneurs, bankers, managers, CEOs (Miller and Friesen, 1982; Palich and Bagby, 1995; Sarasvathy *et al.*, 1998). Keh *et al.* (2002), building on Simon and Houghton’s (2002) study, suggest that in evaluating opportunities entrepreneurs’ risk perception is influenced by the ways in which they process information. Because entrepreneurs are making decisions in conditions of uncertainty they can only use rules-of-thumb based on past experience. Thus, entrepreneurs tend to be overconfident, use minimal

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information, plan with a view to success by ignoring past difficulties or problems that may have a bearing on the current scenario, and have greater belief in their ability to control performance in situations where chance and luck may have a significant part to play. Hence, where any of these factors play a part, entrepreneurs perceive lower levels of risk.

A number of researchers have used meta-analytical reviews of research in an attempt to verify particular findings across a range of relevant studies. Indeed, some authors have argued against the value of descriptive reviews (Rauch and Frese, 2006, 2007a). Meta-analytic reviews, for example, carried out by Stewart and Roth (2001) suggest that entrepreneurs have a higher risk-propensity than owner-managers or contractually employed managers; however, this was contested by Miner and Raju (2004) who suggested that entrepreneurs are risk-avoidant. Hence the adoption of meta-analytic reviews does not necessarily resolve an issue where the conceptual frame and starting assumptions of the researchers differ. A recent review of human capital attributes included skills meta-analytically reviewed from 70 independent samples in an attempt to clarify the relationship between human capital and entrepreneurial success (Unger *et al.*, 2011). The authors demonstrated the importance (with statistical significance) of relating human capital to task performance in order to achieve successful outcomes. They found that the majority of papers used human capital investments (such as education, experience and learning) rather than outcomes of human capital investments (i.e. various entrepreneurially related, business or technical skills). They showed that the outcomes of HC investments were related to success with statistical significance. A clear limitation of many of the studies reviewed was that they tended to use cross-sectional designs, when there is a clear need to view entrepreneurship as a process which takes place over time. Hence research design should be longitudinal and identify task-related skills not solely of measures of past experiences. The paper also raises the question of the nature of underlying entrepreneurial theory; primarily entrepreneurial recognition and exploitation and its soundness. However a further cautionary note should be sounded; these researchers found that the relationship between human capital and entrepreneurial success was smaller than the latter and personality (Rauch and Frese, 2007a) or entrepreneurial orientation (Rauch *et al.*, 2009).

## Conclusions

This paper has considered in depth: the nature of skill and entrepreneurial skills in particular; the theoretical underpinnings of, and the research approaches in paradigmatic terms by which, a more profound understanding of skills could be gained. It has been clear from the outset that the concept of skill is slippery; researchers used it in different ways, and this has implications for policy makers and practitioners. We might ask therefore has anything useful emerged from this review. I would suggest the following:

First in respect of skill *per se*; it is evident that there are a set of baseline skills that young people learn through education and then build upon through experience and training. These skills are for life, employability and entrepreneurial/innovative capability. Hence the implications of this are that skills can be learnt; through policy an appropriate framework should be provided at all levels of education and training to enable people to upgrade their skills.

Further, skill should be grounded in the context and the task environment; to carry out a job or task skilfully is to do it proficiently, that is competently. This suggests



practical standards of proficiency, and the need for standards at firm and government levels.

Also, skill should be distinguished from ability (an aptitude) and competency which appears to refer to a mix of knowledge, skills, abilities and sometimes other attributes as well. Skills are multidimensional; they comprise a cognitive element – know-how, affect – the emotional expression of carrying out the task, and behaviour – the selected action be it strategic, tactical or personal. All of this is carried out in a context in which the cues must be learnt in order to take appropriate action. Research should reflect this understanding.

The entrepreneurial process is lengthy and complex thus it is appropriate to consider what skills are required at its various phases. The question then arises from a research perspective should investigation of the skills' set be at individual or firm level? Much has been unearthed by pitching the research at the level of the individual, but here multi-level theorising would build and thus be a useful way forward.

The dominant theory in entrepreneurship is opportunity recognition and it makes sense, as have many researchers, to attempt to hang skills around the various steps in this process. The key skill identified is “alertness to opportunity” though this appears to be an ability, with which endowment the entrepreneur arguably is born. Other skills identified are cognitive; the assumption appears to be that entrepreneurs exercise such skills appropriately if they are to be successful that is, realise and develop an opportunity. Such assumptions remain largely untested.

However, there is an important caveat and that is to ask how sound is this theory? Practitioners do not necessarily identify opportunity recognition as the process that they are engaged in. If practical and policy implications are to be soundly based then so should theory. Hence, there is evidence to suggest that entrepreneurs commence by recognising a social or market need, which has value, and subsequently build a business around that. This is the reverse of Kirznerian “alertness to opportunity” which controversially is the equivalent of seizing upon an idea to which value is imputed, but which may turn out to be worthless. Moreover, it is not sufficient to identify what entrepreneurs do when they identify a social/market need, but with what proficiency they execute the subsequent steps to develop it into a social/market value proposition.

Opportunity recognition theory has been positioned within positivism as such its elements should be measurable. However, the theory has become so complex that measurement and testing are problematic. Added to this non-positivists claim that opportunities cannot have objective reality, they are the creations of the entrepreneurs who pursue them. Theory is important but so too is empirical testing; too much is left to theoretical speculation much more fieldwork is needed in order to substantiate each element of theory.

The skills for carrying out entrepreneurial or innovation endeavours proficiently are framed socially, economically and politically and as such they are valued (or not). This valuing of skill is a subjective process. Depending upon one's class, position in society or status, one's skill may be differentially valued. This has profound practical and policy implications and is ripe for picking.

An alternative paradigmatic approach, social constructionism, has gained in momentum. Further work could beneficially be pursued by researchers examining the language used and the actions and decisions taken to initiate and execute the entrepreneurial process. Much of the recent research in this vein emphasise the process-relational approach which highlights the engagement with others

(and the skills associated with such engagement), the creative nature of the process, and the socially embedded nature of entrepreneurial activity.

Issues of measurement error in research include both over- and under-estimation of true skill. Furthermore, entrepreneurship researchers do not appear to have got to grips with the multidimensional nature of particular skills – a critical one being that of risk-taking propensity. A focus on what other skills might be conceptualised and researched from this perspective is needed.

An important process is underway of reviewing research, sifting findings and drawing albeit tentative conclusions through the use of meta-analytic reviews. These allow for the identification of significant findings from a large number of studies within a positivist, quantitative framework of analysis. They can highlight the need for further research and changes in direction (Unger *et al.*, 2011, p. 354). For example, a need to refocus on learning and learning from experience; what behaviours and skills emerge from this process and how do such outcomes relate to different criteria of success. But the descriptive review also has a role to play in uncovering fundamental, philosophical issues that drive research in particular directions, for example, the valuing of skills. Researchers should take on board the findings of both, as they offer important steers, not only to furtherance of research, but to the implications for policy and practice.

In conclusion this paper highlights the need for considerably more research to identify the nature of skill in the entrepreneurial process; to test theory exhaustively for the benefit of training and educating entrepreneurs of the future.

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### About the author

Elizabeth Chell has worked in higher education from 1976 to the current day. She has held the position of Full Professor from 1991 to present. She is a Fellow of the Royal Society for the Arts, Manufactures and Commerce (RSA) and of the British Academy of Management. She has published over 70 academic books, edited works, journal articles and book chapters and reviews for several top journals. Elizabeth Chell can be contacted at: [e.chell@kingston.ac.uk](mailto:e.chell@kingston.ac.uk)

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