

“The need for an integrative framework to challenge traditional entrepreneurship theories: the context of effectuate education expertise”

AUTHORS

Tarja H. Niemelä
Reija A. Häkkinen

ARTICLE INFO

Tarja H. Niemelä and Reija A. Häkkinen (2014). The need for an integrative framework to challenge traditional entrepreneurship theories: the context of effectuate education expertise. *Problems and Perspectives in Management*, 12(4-2)

RELEASED ON

Tuesday, 16 December 2014

JOURNAL

"Problems and Perspectives in Management"

FOUNDER

LLC "Consulting Publishing Company "Business Perspectives"



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

© The author(s) 2025. This publication is an open access article.

SECTION 3. General issues in management

Tarja H. Niemelä (Finland), Reija A. Häkkinen (Finland)

The need for an integrative framework to challenge traditional entrepreneurship theories: the context of effectuate education expertise

Abstract

By using integration as method the authors have brought together entrepreneurship and education theories in a new way of combining individual, cooperative and organizational level. In the conceptual study the authors propose a framework for integrating the various theories of education expertise. To achieve this integration, the researchers draw on theories from the fields of entrepreneurship, knowledge and learning, and capabilities and resources. The authors examine the theories from three perspectives: individual, cooperative and organizational. The study offers a model of effectuate education expertise and suggests new paths for entrepreneurship research. The practical implications suggest that management of effectuate education expertise is of co-creation needed in education business contexts.

Keywords: effectuation, entrepreneurship, integrative approach, theory building, education expertise, education export.

JEL Classification: M20, O10, L20.

Introduction

To develop further, traditional entrepreneurship theory needs new theoretical and methodological directions, and theory construction methods that unite approaches and various fields of science, such as effectuation theory of Sarasvathy (2001) and the integral theory of Wilber (1997) and as a key to suggest how entrepreneurship may be used to better understand, develop and spread education expertise. Entrepreneurial mindset and expertise have been shown to be crucial to organizational performance in changing environments (Penrose, 1995; Salvato, Williams and Habbershon, 2002; Sautet, 2000; Steier and Reya, 2002; Teece, Pisano and Schuen, 1997). As Floyd and Woolridge (1999, p. 7) suggest:

‘Existing capabilities are extended and new capabilities developed when an individual or small group within the organization identifies the entrepreneurial opportunities and begins to pursue entrepreneurial initiatives [...] and new constructs from knowledge and social network theory can be integrated.’

We see these aforementioned conversations mainly relating to the resource-based view (Penrose, 1995 [1959]; Chandler and Hanks, 1994) focusing on the resources that a firm has (tangible and intangible resources), capability theories (Amit and Schoemaker, 1993; Levinthal and March, 1993), which have a close connection with the knowledge-based view of firms, and with learning theories.

Effectuation has rarely been studied in organizations and integration has not been used as a method in combining effectuation and expertise in the context

of education business. Accordingly, we are going to organize our in-depth literature review on education expertise by asking what is effectuate education expertise in the context of organization? Integral theory fits in viewing education expertise in the context of an organization as a multilevel because it is a multiperspective phenomenon whilst effectuation helps us to fill the gap between expertise and organization because it starts from individual knowledge-, capability- and relation-based cooperation and effectuate outcomes are built on enactment and co-creation. We use effectuation as a theoretical tool to help integrate the theories into a framework of effectuates educational expertise. Effectuation is a logic found in expert entrepreneurs. Developed by Saras D. Sarasvathy (2001), effectuation theory suggests that effectually acting individuals concentrate on who they are, what they know and whom they know. Concentrating on affordable loss and by leveraging contingencies, they further strive towards co-creation. There has been increasing interest in the intersubjective among the effectuation scholars (Sarasvathy and Dew, 2005; Venkataraman et al., 2012). This research strives towards shedding light on the subjective, objective and intersubjective levels in the context of educational expertise in an organization. We will refer to these levels as, respectively, individual, cooperative and organizational.

This article builds on the notion of Venkataraman et al. (2012, p. 24) of researching entrepreneurship *‘as a science of the artificial [that] is interested in phenomena that can be designed.’* As a field of creation and a construction, entrepreneurship could be described through a more holistic perspective. In other words, show the elements the phenomenon

can be built from and which methods may be used. There are many concepts in entrepreneurship that have been cross-examined in different fields using a variety of theories. The theories are rarely collected in one paper to see how the phenomenon appears on a metalevel. One of the concepts that we think could benefit from this holistic perspective and integration of the existing discussions is education expertise. We propose a preliminary model of education expertise to explain how it can be researched and developed as effectuate.

To organize our discussion on education expertise, we use Wilber's (1997) integral theory as a framework. The core principles of Sarasvathy's (2001, 2008) effectuation theory – 'who I am', 'what I know', 'whom I know' – are adopted as tools to guide how we organize the chosen theories in order to match Wilber's three worldviews: subjective, intersubjective and objective. In addition, we use Nonaka and Takeuchi's (1995) theory of knowledge creation to organize the theories in Wilber's four quadrants and show how knowledge creation occurs in tacit and explicit knowledge. With this integration of different theories, we clarify the concept of education expertise and show how it is intertwined with individual, cooperative and organizational perspectives.

Contemporary understanding of educational expertise is highly fragmented. Theories about expertise overlap different levels of analysis and they take different, partially overlapping and altogether complementary perspectives which we are about to consider in this article. We suggest that considering 'educational expertise' as an integrative, multilevel contextual concept helps in understanding, using and developing it within and between organizations. Here we thus take an etymological perspective on the word 'expert', what theories relate to it and how it is used related to the word "expert" in entrepreneurship, knowledge and education.

In this article, we first discuss the need for integration. Second, we define and conceptualize education expertise using earlier theories of knowledge, learning and capabilities. Thirdly, we integrate the most essential ideas into a framework that describes the present state of education expertise. Fourthly, we discuss the future research and the limitations of the study.

1. Integration as a method

1.1. Integrative approach. Integrative thinking is *'the ability to face constructively the tension of opposing ideas and, instead of choosing one at the*

expense of the other, generate a creative resolution of the tension in the form of a new idea that contains elements of the opposing ideas but is superior to each' (Martin 2009, p. 15). We use this definition as one foundation in the development of our theory. This development is facilitated by using the integral theory of Wilber (1997) as a tool. In Wilber's theory, the essence of different theories are taken and converted into a framework that is used to integrate and interpret various phenomena. Wilber (1997, p. 71) has called for an integrative approach to be carried out by identifying the essential elements of theories, emphasizing these and bring them together. In the integration, a connection between levels in each of the four viewpoints should be maintained. Our research contributes to education expertise by integrating a number of theories surrounding the phenomenon.

Wilber's theory has rarely been applied in entrepreneurship. However, entrepreneurship and organization researchers have theoretically modelled what should be considered when combining perspectives, (e.g., Schultz and Hatch, 1996) or different theories (e.g., van de Ven and Poole, 1995). Paradigm interplay, as explained in Schultz and Hatch (1996), is one method to validate the integrative approach. It concentrates on seeking the overlaps and complementarities of different paradigms.

Voros (2007, p. 16) suggests that integrative theory is suitable for entrepreneurship research. He also observes that there have been several calls for an integrative approach in the field of entrepreneurship and that the advantages of this perspective have been considered but not yet widely used or accepted. One of the reasons the approach has not been used is probably paradigm incommensurability, which, on the other hand, has been widely accepted and recommended as a starting point for research (Schutz and Hatch, 1996). Although we acknowledge that maintaining clarity in research is valuable, we propose that interconnectedness between paradigms should also be researched. In our research, we consider it important to connect the comprehensive literature review of the earlier research on approaches to capabilities and resources and integrate it with education expertise through entrepreneurial effectuation and ways of knowledge creation. The integrative approach also supports understanding the meaning of context from individual and organizational perspectives.

1.2. Integrating education expertise. Our study has two sets of overarching themes: personal identity, professional knowledge and sociocultural knowledge at the individual, organizational and cooperative levels. Beginning from the effectual, and thus

essentially from the individual point of view, we focus on the performance of the individual instead of on the performance of the firm. We also consider an individual's commitment and the committing of others to work in to the same direction, relying on the dependencies that occur in the ownership relationships and cultural partnerships (interaction, rules and agreements) and on the trust in one's own expertise as well as in that of others in a network. The effectuation model implies well how effectuators expand their individual resources in cooperation and guide transformation of the artefacts toward new means (entrepreneurs themselves) and new goals (firms, networks) into organizations while entering new markets. Rather than goal driven or resource driven, effectuation is intrinsically path and stakeholder dependent.

In the discussion of complementary competencies, innovation and creativity come to the fore. Without interactive processes and interaction, shared goals and a networking culture cannot be achieved. The idea of learning presented in these theories and discussions is encapsulated in the view of expertise as a collective phenomenon rather than an individual one (Engeström, 1996, 2004). From the knowledge management point of view, it is important to pay attention not only to the learning of individuals but also to the learning and development of the collectives, teams and units that constitute a workplace. This broader perspective applies, for example, to the role of managing a network of expertise and learning. It also applies to the role of culture and the sharing of values with our partners and the accountability of the expertise used in various partnerships. In general when discussing education expertise, the key conceptualizations are trust, commitment and the cultural specificities of learning and expertise.

In this section we integrate the individual, organizational and cooperative perspectives into our model by dividing them into four viewpoints: constructing, resources, cooperating, and organization. We introduce effectuation theory (Sarasvathy, 2008) and the model of knowledge creation (Nonaka and Takeuchi, 1995) and suggest how these views and overall theories relate to Wilber's integral model (Esbjörn-Hargens, 2010; Voros, 2007; Wilber, 1997).

2. Theoretical framework

2.1. A dynamic model of effectuation. Sarasvathy (2008, p. 10) sees a fundamental difference in the logical framework used by Shane (2003). At one end are (causal) entrepreneurs engaged in the exploration and exploitation of opportunities, and on

the other end are effectual entrepreneurs who end up fabricating opportunities from the mundane realities of their own lives and value systems. Sarasvathy (2008, p. 12) defines an expert as '*someone who has attained a high level of performance in the domain as a result of years of experience and deliberate practice.*' Sarasvathy acknowledges that nothing comes without deliberate practice. Expert entrepreneurs begin with who they are, what they know and whom they know. They focus on what they can do and do it, without worrying much about what they ought to do.

Sarasvathy (2008, p. 15) identifies principles that point out the logic of action and embodies the idea of non-predictive control that is called effectuation: *The bird-in-hand principle* is means-driven action as opposed to goal-driven action. The emphasis is on creating something new with existing means rather than discovering new ways to achieve given goals. *The affordable loss principle* prescribes committing in advance to what one is willing to lose rather than investing in calculations about the expected returns of a project. *The crazy quilt principle* involves negotiating with any stakeholders who are willing to make actual commitments to the project without worrying about opportunity costs, or carrying out elaborate competitive analyses. In addition, who comes on board determines the goals of the enterprise. *The lemonade principle* suggests that acknowledging and appropriating contingency by leveraging surprises rather than trying to avoid them, overcome them, or adapt to them. *The pilot-in-the-plane principle* urges relying on and working with human agency as the prime driver of opportunity rather than limiting entrepreneurial efforts to exploiting exogenous factors such as technological trajectories and socioeconomic trends.

Accordingly, effectual logic is based on the premise that as long as one can control the future there is no need to predict it. From this point of view, effectuation is the inverse of causation. The causal model begins with an expected outcome and seeks means to create it. The effectual model begins with given means and seeks to create new ends using non-predictive strategies. Effectuation rearranges many other traditional relationships, such as those between the organism and the environment, the individual and society and so on. These relationships become a matter of design rather than one of decision.

Entrepreneurs use both the causal and effectual approaches in a variety of combinations. This combined approach suggests that it could be better to analyze causal and effectual approaches as a strict dichotomy (Sarasvathy 2008, p. 16). However, a

dichotomy does not result in suggestions to abandon one view because the other would be somehow better. Instead, context is what is important. Causal logic fits better in predictable situations and effectual logic in unpredictable ones.

2.2. Model of knowledge creation. Knowledge creation is based on the interaction between tacit knowledge and explicit knowledge. Nonaka and Takeuchi (1995) have pointed out that such creation involves passing through several ontological levels, such as the individual, group, organizational and inter-organizational levels, in order to be effective for all the people and for the whole organization. According to Nonaka and Takeuchi (1995), explicit knowledge includes all knowledge that is easy to articulate and express formally and in clear terms. What is noteworthy is that in innovations tacit knowledge is much more important than explicit knowledge. Tacit knowledge means personal and subjective knowledge that is embedded in individual experience and action; it involves personal intuitions, ideas and values. Tacit knowledge is difficult to imitate and communicate to others. If innovation is at the core of the company's performance, it is important to ask how personal know-how and experience are transformed to be useful for the whole group or network and conversely, how explicit knowledge in the group or network can be transformed into personal know-how experience.

2.3. Three perspectives to the organization. Wilber (1997) and Esbjörn-Hargens (2010) describe how the world is seen from three major worldviews that equal our perspectives: subjective, intersubjective and objective. The same categorization is used in, for example, Venkataraman et al. (2012) and Davidson (2001). We use this thinking in the context of an organization. We label the three perspectives as individual, organizational and cooperative. The three perspectives are divided between the individual and the collective as well as between the subjective and objective. The framework suggests that an organization can be interpreted from the perspectives of the individual, the cooperation and the organization itself. Each perspective can be regarded as a whole, but together they constitute what we understand as 'an organization'. The individual perspective looks at the world through the individual, 'I' in the Big Three of Integral Theory (e.g. Esbjörn-Hargens 2010, p. 37). It includes first-person emphasis and has the consciousness as the starting point. The cooperative perspective, 'WE' in the Big Three of Integral Theory (e.g. Esbjörn-Hargens, 2010, p. 37), looks at the world from the intersubjective level. It includes second-person

emphasis and has the culture as a starting point. The organizational perspective, 'IT' or 'ITS' in the Big Three of Integral Theory (e.g. Esbjörn-Hargens, 2010, p. 37), looks at the world from the objective perspective. It includes third-person emphasis and has nature and evolution as starting points, meaning that the focus is on patterns of the organizational evolution. The organizational perspective includes the individual and the cooperative perspectives but looks at them more structurally.

We argue that expertise is constructed in these three perspectives. If we want to consider these three perspectives as equally important but also as partial pictures of an organization, we can examine each through four viewpoints. In expertise, the theories regarding knowledge, capabilities, resources and entrepreneurship all overlap with the perspectives of the individual, the cooperation and the organization and on the other hand, these should be categorized so that we can describe each of these three perspectives holistically through these four viewpoints.

2.4. Four viewpoints to further deepen the three perspectives of an organization. To develop the four viewpoints of the integrative approach in the most robust manner possible so that they apply to a certain context, there are several principles to consider: a) Different viewpoints should be clearly separated from each other, b) the viewpoints must complement each other, c) different viewpoints must be seen from the same perspective, according to the same criterion, and d) one criterion unites the four viewpoints. The different viewpoints share a quality of being able to be researched separately. One perspective should be seen and researched on its own terms because integral theory suggests that one of these perspectives cannot be understood through the lens of another reality (Esbjörn-Hargens, 2010, p. 36).

Perspectives can be explained through four viewpoints. The enriching potential of the integrative approach derives from the tension between the differences among the viewpoints seen according to the essential, core similarity (i.e., the unity of the viewpoints). One viewpoint is valid as it is, but not yet complete enough to be considered as a whole. In other words, a viewpoint cannot serve as a holistic description of a phenomenon when that phenomenon is seen from a single perspective. We acknowledge that this approach has advantages as well as disadvantages. We do not claim that the integrative approach is superior to other approaches. Instead, we are suggesting that it is one less utilized and thus could reveal new entry points for entrepreneurship research, new views on contemporary perspectives of

entrepreneurial behavior and finally, new ways to explain the essence of entrepreneurship as an emergent phenomenon of creation and continuous change.

The four viewpoints are divided between individual and collective as well as between subjective and objective. Using the four viewpoints, each single perspectives can be observed more holistically. The constructing viewpoint is concerned with the intentional and experiential. The capabilities and ways to move between individual, organizational, and cooperative perspectives are seen as a construction of individual genes, upbringing, life experiences, education, relationships and other interactional processes. The knowledge acquired through this viewpoint is tacit. It is seen as guiding individual reactions to the outer world. Constructing can make the units of analysis really consider ‘who I am’ or at least to act according to their best interest and understanding. This interior individual perspective can be described as intentional and subjective.

The resources viewpoint is concerned with the behavioral aspects that can be articulated. Individual, organizational and cooperative resources are seen as definable. Resources, in other words, can be expressed explicitly in words. They derive from the construction and consider ‘what I know.’ This exterior perspective can be described as behavioral and objective.

The cooperative viewpoint is concerned with what is cultural and based in worldviews. Individual, organizational and cooperative learning as seen to benefit from interaction. Learning includes emergent, transformative and interactive elements. In cooperation, individuals strive toward interaction via considering ‘whom I know.’ This interior perspective can be described as cultural and intersubjective.

The organizational viewpoint is concerned with what is social and systemic. It is the context where all these processes happen. An organization gives guidelines to the individual, cooperative and organizational aspects and these aspects, or processes, can be explicitly described. To organize, the issue in ‘how to organize who I am, what I know, whom I know’ has to be considered so that one can be aware of one’s own contemporary behavioral organizing principles. This exterior perspective can be described as social and interobjective.

2.5. Adapting the integral model to education expertise. The four viewpoints – constructing, resources, cooperating and organization – correspond to those of Wilber’s (1997) ‘I’, ‘It’, ‘We’, ‘Them’ which we consider as corresponding to Nonaka and Takeuchi’s (1995) tacit, explicit, tacit to explicit, and explicit to tacit as well as Sarasvathy’s three perspectives of ‘who I am’, ‘what I know’, ‘whom I know’, further elaborated in Figure 1.

INDIVIDUAL		ORGANIZATIONAL	
CONSTRUCTING "who I am" tacit to tacit	RESOURCES "what I know" tacit to explicit	CONSTRUCTING "who I am" tacit to tacit	RESOURCES "what I know" tacit to explicit
COOPERATION "whom I know" explicit to tacit	ORGANIZATION "how to combine" explicit to explicit		
CONSTRUCTING "who I am" tacit to tacit	RESOURCES "what I know" tacit to explicit	COOPERATION "whom I know" explicit to tacit	ORGANIZATION "how to combine" explicit to explicit
COOPERATION "whom I know" explicit to tacit	ORGANIZATION "how to combine" explicit to explicit		
COOPERATIVE			

Fig. 1. Integrative framework of effectuation and knowledge creation

In constructing our framework with four viewpoints in each perspective, we need to consider how to organize the theories related with education expertise. Each perspective has a different focus: the individual uses

the individual as the unit of analysis and considers the processes happening inside an individual; the cooperative perspective focuses on the intersubjective and the organizational on the objective.

3. Theories and approaches of education expertise

A number of conceptual and empirical studies have focused on describing expert knowledge, knowledge transformation and knowledge creation (Eraut, 2004; Le Maistre and Pare, 2006; Nonaka and Konno, 1998). There are various models of professional expertise (Bereiter, 2002; Bereiter and Scardamalia, 1993), integrative pedagogy (Tynjälä et al., 2006) and metaphors of learning (Hakkarainen et al., 2004; Sfard, 1998). In addition to the discussions considering knowledge, discourses on skills, competences and capabilities are not new in educational and entrepreneurial contexts (Penrose, 1995; Salvato, Williams and Habbershon, 2002; Sautet, 2000; Steier and Reya, 2002; Teece, Pisano and Schuen, 1997). In entrepreneurship, we see these aforementioned conversations mainly relating to the resource-based view (Penrose, 1995 [1959]; Chandler and Hanks, 1994) focusing on the resources that a firm has (tangible and intangible resources), capability theories (Amit and Schoemaker, 1993; Levinthal and March, 1993), which have a close connection with the knowledge-based view of firms, and with learning theories.

The entrepreneurial view shows us that personality, knowledge, resources, and process are at the core of the entrepreneurial actions (Frese, 2009; Murphy et al. 2006; Shane, 2003; Shane and Venkataraman, 2003). Knowledge-based theories (Eisenhardt and Santos, 2001; Grant, 1996), which consider knowledge as the most significant resource of the firm, extend the resource-based view of the firm. As Eisenhardt and Santos (2001, p. 2) state: *'The knowledge-based view offers a number of useful and empirically grounded insights into the multi-level social processes through which knowledge is sourced, transferred, and integrated, within and across organizations.'* All these different approaches, from the knowledge-based view of the firm and learning theories to capability and entrepreneurship approaches to firms, are important elements when integrating expertise in individual, organizational and cooperative perspectives. However, discourses on these topics are fragmented. The need for clarification and integration is clear.

As globalization increases, the context of education changes. The traditional reasons for internationalizing education are shifting in the eyes of governments and the public from the perceived benefits of intercultural exchange to the perceived benefits of profitable trade. Education, like many other inherently value-laden and culture-specific societal issues that were previously considered immeasurable in economic terms, is being commoditized. Education covers also the education export products and services organized

or tailored for customers. Exportation refers broadly to business customers, including private persons, representatives of private and public sector organizations as well as industries and foundations. Education as an export refers to situations where teachers, students, programs, institutions or course material cross national borders (Bennel and Pearce, 2003; Leslie and Kargon, 2006; Martens and Starke, 2008). We mainly agree with the essence of the definition but we would like to change the wording 'cross national borders' to 'cross contextual borders'. In our view, crossing contextual borders is enough for education to be considered as an export. In other words, exporting education-related objects and functions out of their usual context serves as exportation criteria.

For the purpose of this study, expertise is understood broadly as the actual cognitive competence an individual actor draws upon in effective problem solving, regardless of his or her formal education or position in an organization (Hakkarainen et al., 2004). However, if we are speaking at the individual, team, organizational or networked organizational level of education expertise, it is possible that there is a similar concept or nearly overlapping concepts in specific contexts and industries for knowledge, expertise, competence and capabilities.

3.1. Entrepreneurship view. Recent entrepreneurship research views personality, knowledge, resources and process as being at the core of entrepreneurial actions (Frese, 2009; Shane, 2003; Shane and Venkataraman, 2003). Frese (2009, p. 29) argues that in action theory and resource allocation theory energy, motivation, knowledge and working memory are needed to develop elaborate and proactive plans, and a proactive personality makes proactive and elaborate planning desirable, which in turn means that a proactive personality is related to entrepreneurial success. As Frese (2009) proposes, elaborate and proactive planning is a mediator between cognitive resources, such as cognitive ability and qualifications. Motivational resources (a proactive personality, self-efficacy, the need for achievement, internal locus of control) are related to success, but are also culturally dependent. A number of researchers have observed that entrepreneurial success is increased by better and larger social networks (Hoang and Antonic, 2003; Johannisson, 2002), as well as by learning from feedback and one's mistakes (error learning) and by practising skills that are crucial for high expertise.

3.2. Capability approaches. Capability approaches have a close connection to the knowledge-based view of firms in terms of experimental, localised

and socially constructed knowledge. Capability theories take a different view in attempting to solve the problems of information and knowledge. Foss (1996) has stated that the firm is seen as a nexus of incomplete contracts that is able to coordinate collective learning and adapt to unforeseen changes in a more effective way than markets. Accordingly, tacit and social knowledge are keys to understanding a firm (Penrose, 1995 [1959], p. 53-54; Foss, 1996, p. 17-18). Firms have resources that are activated and used in different contexts. In the context of an organization, capabilities can be seen as outcomes of routines and collectively held knowledge of how to do things which is a result of the integration and coordination of specialized individual knowledge (Kogut and Zander, 1992). Knowledge is also integrated with the multiple and multilevel relationships, which brings together individual knowledge, skills and social ties within the organization in teams as well as outside of the organization in the networks. According to Floyd and Woolridge (1999, p. 7), capabilities can be seen as extended and developed through entrepreneurial opportunities. Sautet (2000) views an organization as ability to coordinate collective learning and adapt to unforeseen changes in a more effective way compared to markets. In this light, tacit and social knowledge are fundamental keys to understanding firms, and a firm's capabilities are employed to solve problems and learn from those solutions. Thus, a firm can be seen as a seedbed of knowledge in which individuals and teams learn and improve the routines of the firm.

3.3. Knowledge creation. Several models of knowledge creation have shed light on individual level of expertise. These include Nonaka and Takeuchi's (1995) model of knowledge creation, Engeström's (1987, 1996) theory of expansive learning and Bereiter's (2002) theory of knowledge building. According to Nonaka et al. (2006), the concept of 'ba' means the context of knowledge creation. Nonaka and Konno (1998) have further developed Nonaka and Takeuchi's knowledge spiral model and distinguished between different types of learning spaces. Originating 'ba' is for socialization, being a space where people can meet face to face and share feelings, experiences and mental models. There the knowledge creation process begins. Interacting 'ba' is for reflecting and analyzing, and cyber 'ba' is for combining explicit knowledge with other explicit knowledge. Exercising 'ba' is the space of action and utilization of the explicit knowledge obtained before. The concept of 'ba' is connected in various ways to the organizational creation of new knowledge, and it has several features in common with communities of practice (Wenger, 2000), or the zone of proximal development (Nonaka et al., 2006).

Engeström (2004) has introduced the concept of expansive learning. By expansive learning he refers to collective learning. This kind of learning goes beyond individual learning and acquisition of existing knowledge. Engeström (2004) argues that expansive learning produces radical transformations in and between organizations. Again, this kind of process is a key process of expertise and involves negotiated knotworking as the defining characteristic of collaborative and transformative expertise. By knotworking, Engeström (2004) means, for example, people who work and come together for certain purposes, to negotiate meanings in order to solve problems and then continue with other partners for other purposes, maybe to reform again later on. In a similar vein, Hakkarainen et al. (2002, 2004) have stated that the knowledge creation metaphor addresses processes of deliberate transformation of knowledge, which means it also addresses processes, practices and social structures that are likely to encourage formation of new knowledge and innovations rather than adaptation to the existing culture or assimilation of current knowledge and corresponding collective social practices.

Learning can be understood through two metaphors, the acquisition metaphor and the participation metaphor (Lave and Wenger, 1991; Sfard, 1998). In the acquisition metaphor, learning is a process of transmitting knowledge to an individual learner as active and constructive, or just as a receptive process. In contrast, the participation metaphor of learning emphasizes the role of social communities in the development of expertise (Sfard, 1998). Thus, learning is seen as an interactive process of participating in various cultural practices and shared learning activities rather than as a simple process of individual knowledge formation. Lave and Wenger (1991) and Wenger (1998), among others, state that dynamic development of expertise is fundamentally dependent on participation in an expert culture, 'a community of practice', that carries cultural knowledge (formal, informal, non-codified, codified and embedded) of the domain and provides access to cultural tools and practices. Accordingly, for the knowledge creation metaphor, learning can be seen as a collaborative effort to enhance some subject matter, and it fundamentally relies on an interaction between individual and communal processes. The individual's initiative embedded in fertile collaborative practices is the basis for an innovative community.

If considering the context of this study – business organizations or for example educational business contexts – it is most evident that knowledge management is one of the most crucial competitive

factors of these organizations and the knowledge creation metaphor deals with the essential foundations of this idea. According to Coleman (1999), knowledge management comprises deliberate organizational efforts to facilitate innovations and knowledge creation. This means creating mappings of organizational knowledge and distributing and sharing knowledge. An essential task of knowledge management is to support the dynamic development of expertise but also to facilitate progressive problem solving and encourage social sharing of cognitive processes and competencies. Optimally, the process leads to growing intellectual capital through knowledge creation, deepening levels of expertise within communities and increased socially shared cognitive resources of the organization, including meta-knowledge.

Shedding light on expert knowledge, Bereiter (2002) has classified expert knowledge into six kinds of knowledge that, in our study, can be seen as six kinds of resources types in firms. ‘Stable knowledge’ refers to knowledge that can be expressed explicitly (see also Bereiter and Scardamalia, 1993). ‘Implicit understanding’ is tacit knowledge. People acquire implicit understanding through experiences, not from books. ‘Episodic knowledge’ is also born from experience gained from different episodes, events, cases and narratives from our past (Bereiter, 2002, p. 140). ‘Impressionistic knowledge’ can be seen as extremely vague implicit understanding and it is expressed in feelings or intuitions. ‘Skill’ was labelled as procedural knowledge in Bereiter and Scardamalia’s (1993) previous classification but in the revised taxonomy in Bereiter (2002, p. 137, 143), ‘procedural’ is a particular class of skills defined by explicit steps. Skills have a cognitive and a sub-cognitive component, although these are intertwined. The cognitive component is knowing-how, being able to do things while the sub-cognitive part is the improvement in skill that comes with practice. For ‘regulative knowledge’, Bereiter and Scardamalia (1993) extend the scope of knowledge beyond the regulation of one’s own activities. Self-regulative knowledge involves metacognitive knowledge about one’s ways of doing and thinking as well as one’s strengths and weaknesses, while regulative knowledge pertains to collective activity as well, involving the principles and ideals that certain professional groups pursue in order to accomplish their work.

After examining the above theories of education expertise, we have come to view expertise as a process that starts in the individual and becomes a social phenomenon, with it being anchored to

environments and culture. Expertise is connected to earlier knowledge resources and capabilities that are produced by individuals and socially, but they are also meant to be transferred and shared in communities and societies. Expertise and becoming an expert are above all social phenomena that tend to reduce intelligence to shared practices and tools and thus they ignore the cognitive component of expertise (Helle et al., 2006, p. 197). The socio-cultural approach also promotes a shift from more traditional cognitive models towards a more socio-cultural model of human cognition, a model in which networked expertise also becomes relevant (Hakkarainen et al., 2004). An integration of psychological, sociological, and educational approaches is needed in order to understand individual, collective and organizational aspects of learning and human development.

4. Effectuate education expertise

Applying the individual perspective to knowledge expertise, we review a few theories and approaches that describe the construction of individual, cooperative and organizational educational expertise (individual resources, individual cooperation and individual organization). We look at effectuate expertise by examining it from the knowledge-based, resource-based, capability-based viewpoints, and apply the lens of effectuation to entrepreneurship. We find that the theories as such do not adequately capture the essence of educational expertise and so we propose integrating them to promote a more holistic understanding.

4.1. Integrative framework of effectuate educational expertise. 4.1.1. Individual perspective.

To integrate the theories of educational expertise in our framework, we start in the upper left corner, *the individual*, which describes things that are tacit and also answers the effectuate question of ‘who I am’. In the individual perspective we are interested in how educational expertise is constructed within an individual. The four viewpoints can be interpreted as follows: *individual–individual* deals with subjective issues: individual self-identity, emotions and beliefs. *Individual–resources* is concerned with objective issues: perceived knowledge (what I think I know) and individual interests (what I like to do). *Individual–cooperative* is about the intersubjective: connecting between subjective units, e.g. self-identity, emotions and beliefs. *Individual–organizational* rests on the interobjective. It is about organizing the subjective units in a systematic manner, such as choosing between the most appropriate behavioral representations for each situation.

The individual perspective describes the construction of an individual (how I see myself, who I am to myself), the individual–resources (what my interests are, where my attention goes, what I know about myself), the individual–cooperative (what types of knowledge I have and how these types relate to each other), and the individual–organizational (what I know and how it constructs me as a whole). Theories in individual perspective relate to what is intentional, what constitutes individual expertise.

4.1.2. Cooperative perspective. The construction of the individual affects the construction of cooperation. In the cooperative perspective, we are interested in how is educational expertise constructed within cooperation. The four viewpoints can be interpreted as follows: *cooperative–individual* is about subjective: interpersonal understanding, how do I consider myself in interaction with other people. *Cooperative–resources* is about the objective: behavior that can be observed, knowledge that can be utilized and individual interests that are known to drive a person. *Cooperative–cooperation* is about intersubjective: connecting between subjective units, e.g. other individuals. *Cooperative–organization* is about interobjective issues: organizing the subjective units in a systematic manner. In the context of organizations, it means self-selective teams that foster creativity and construction.

The lower left corner, *cooperative*, describes learning processes from tacit to explicit and explicit to tacit. It also seeks to answer the effectuate question of ‘whom I know’. The cooperative perspective includes theories describing the construction of cooperation (what we are, how we cooperate with each other), cooperative–resources (what we know, how knowledge gets transferred between individuals), cooperative–cooperation (whom we know and how we relate to them), and cooperative organization (what we know and how it is organized). These theories refer to what is cultural and what constitutes collective expertise. It is concerned with the processes happening intersubjectively, that is, those happening between people. It reflects the extent to which individuals bring in their own considerations and interpretations as well as those of others.

4.1.3. Organizational perspective. The construction of the individual and the cooperative both affect the organization. In the organization perspective we are interested in how educational expertise is constructed within an organization. The four viewpoints can be interpreted as follows: *organizational–individual* is about subjective issues: how individuals perceive knowledge, capabilities and skills. *Organizational–resources* is about

objective issues: individuals are seen as constantly developing potential, as incrementally changing units moving in their own direction. This belongs to the area of leadership. *Organizational–cooperative* is about intersubjective issues: connecting between subjective units, such as individuals and cooperative units. *Organizational–organization* is about the interobjective: organizing the subjective units in a systematic manner in order to focus and achieve meaningful results. In the context of organizations, it means management viewing the potential of the whole organization and the possibilities to cooperate according to the same logic.

The right side, *organizational*, describes organizational functions which are explicit and which can be led and managed. In this section, the attempt is to answer the effectuate question of ‘what I know’. The right side takes a systemic approach and includes theories describing the organizing of construction (what individuals are, how they should be organized), the organizational–resources (what individuals know and how they cooperate), the individual–cooperative (whom the individuals know and how they relate to others), and the organizational–organization (what individuals know and how it might benefit the organization). These theories refer to what is systemic in the evolutionary sense, what constitutes systemic expertise and what are the processes that can be observed objectively. It reflects the extent to which individuals and cooperative efforts take into account not only the considerations of individuals and their interpretations as well as those of the others but also the cooperative dynamics.

4.2. Integrating effectuate education expertise.

4.2.1. Individual expertise. *4.2.1.1. Individual.* We see the construction of individual expertise as the process of professionalizing oneself in a specific field. Intuition helps individuals make choices. After making a choice regarding a job, an individual concentrates on developing practical skills (Eraut, 2004) by making, for example, theoretical knowledge and methodological knowledge (Eraut, 2004), the process of which changes the making into declarative knowledge (Bereiter, 2002). This process of expertise creation is seen as tacit and an individual concentrates on developing the aspect ‘who I am’.

4.2.1.2. Resources. Acquired skills mean the know-how acquired (Bereiter and Scadamalia, 1993; Le Maistre and Pare, 2006) when skills develop through codified knowledge (Eraut, 2004) into practical, procedural knowledge (Bereiter, 2002). Thus, individual tacit knowledge becomes explicit knowledge by seeing the subjective creation from a more objective point of view by examining ‘what I know’.

4.2.1.3. *Cooperating*. Entrepreneurship (Frese, 2009) means recognizing one's own skills and how they can be developed and linked. The person uses the skills needed in a job (Eraut, 2004) and reflects with other knowledge through understanding (Eraut, 2004) and previous experiences as episodic knowledge (Bereiter, 2002). The skills are thus seen as generic ones, (Eraut, 2004) continuously evolving and affecting one another. Thus individual tacit knowledge, be it knowledge gained in another area of knowledge, gets transferred into tacit; a structural understanding in another area of knowledge. This sounds like a circular statement but it is not. The question is about contextual learning, which does not always allow individuals in exaptation, meaning the favorable and functional structures are applied in contexts outside the original one. Thus here looking at 'whom I know' refers to individual knowledge units and the cooperation between them.

4.2.1.4. *Organization*. Means the control over the knowledge, skills, and their situational use. Therefore it is general knowledge (Eraut, 2004) of the world, regulative knowledge (Bereiter, 2002) regarding how the things are usually done and finally decision making and judgement (Eraut, 2004) on how to react in a specific situation. Here explicit understanding of the world is interconnected with explicit knowledge of oneself. The question is that of connecting 'who I am', 'what I know' and 'whom I know' into enactment, effectuate individual expertise.

4.2.2. *Cooperative expertise*. 4.2.2.1. *Constructing*. This refers to individuals as a group interacting with each other. Each individual has their own level of individual expertise, which can be reflected through effectuation (Sarasvathy, 2008), or sporadically affected through expansive learning (Engeström, 1996, 2004). Tacit into tacit happens here between individuals and 'who I am' gets expressed through communication and behaviour that is reflected in interaction.

4.2.2.2. *Resources*. Here individual knowledge and skills are exposed under evaluation and combination. They are actualized as capabilities and can thus be seen as resources according to the resource-based view (Penrose, 1959). Tacit into explicit is helped by reflecting own capabilities from other people. 'What I know' is also confirmed by the cooperative individuals.

4.2.2.3. *Cooperating*. Cooperation consists of interactive processes and interaction, (Senge, 1990) the requirements of which can be described by 'ba' learning environment (Nonaka and Konno, 1998). In an appreciative and understanding environment, the

explicit knowledge of other individuals has more chance of being transferred into tacit knowledge by examining 'whom I know', and here more specifically 'what I can learn from them that moves both of us forward on our individual paths'.

4.2.2.4. *Organization*. Organizing cooperation means ensuring the transfer of knowledge (Eraut, 2004) that is represented, for example, in the model of innovative communities (Paavola et al., 2004). Here explicit understanding of the world is interconnected with explicit knowledge of oneself as a part of the team. The challenge is to combine 'who I am', 'what I know' and 'whom I know' into effectuate cooperation.

4.2.3. *Organizational expertise*. 4.2.3.1. *Constructing*. Organizational expertise begins from the personal knowledge (Le Maistre and Pare, 2002) of every individual involved. The originating 'ba' (Nonaka and Konno, 1998) makes space for analyzing the history of practices (Engeström, 2004), questioning existing community practices (Engeström, 1996, 2004), knowledge creation (Paavola et al., 2004), examining new solutions (Engeström, 1996, 2004) and modelling (Engeström, 2004). The tacit knowledge is therefore that of how the organizational procedures are understood by individuals and how they are transferred again into tacit knowledge of other individuals. The issue to be examined is 'who I am as a community member'.

4.2.3.2. *Resources*. Professional knowledge (Le Maistre and Pare, 2002) is the resource that can lead to the acquisition of knowledge (Sfard, 1998). Tacit knowledge, that is, professional knowledge, is considered as explicit through certification (educational) and the reputation and capabilities gained through working. The question of what I know is therefore seen as objective; it has to be proven to be a generally held true belief.

4.2.3.3. *Cooperating*. At the organizational level, implementing new practices that develop through dialogue between community members (Engeström, 1996, 2004) can be explained through the participation metaphor (Sfard, 1998). Interacting 'ba' and exercising 'ba' (Nonaka and Konno, 1998) facilitate the dialogue. The cooperation at the organizational level also manifests itself in a learning organization (Senge, 1990). Explicit cooperation practices are transferred into the tacit knowledge of individuals through cooperation. 'Whom I know' is thus the knowledge of how people cooperate and interact.

4.2.3.4. *Organization*. In cyber 'ba' (Nonaka and Konno, 1998), explicit knowledge is transferred to explicit when individuals are explicating it.

Organizing organizational expertise requires knowledge management (Coleman, 1999) and the consolidation of new practices (Engeström, 1996, 2004) into procedures. Here explicit understanding of the world is combined with explicit knowledge of the whole organization fitting in. The task is how to combine ‘who I am’, ‘what I know’ and ‘whom I know’ into effectuate organizational expertise.

4.3. The framework of effectuate education expertise. The framework is created to integrate some of the many theories that explain education expertise. By highlighting the most essential features in each of the four viewpoints and viewing them from the three perspectives, we propose in Figure 2 how these theories could be organized in a single framework.

INDIVIDUAL		ORGANIZATIONAL	
CONSTRUCTING	RESOURCES	CONSTRUCTING	RESOURCES
<ul style="list-style-type: none"> •Intuitive •Professionalism •Practical skills in the making (Eraut 2004) •Theoretical knowledge (Eraut 2004) •Methodological knowledge (Eraut 2004) •Declarative knowledge (Bereiter 2002) 	<ul style="list-style-type: none"> •Acquired skills •Gained know-how (Bereiter & Scadamalia 1993; Le Maistre & Pare 2006) •Codified knowledge (Eraut 2004) •Procedural knowledge (Bereiter 2002) 	<ul style="list-style-type: none"> •Personal knowledge (Le Maistre & Pare 2002) •Originating "ba" (Nonaka & Konno 1998) •Analyzing the history of practices (Engström 1998; 2004) •Modelling (Engström 1998; 2004) •Questioning exercising community practices (Engström 1996; 2004) •Knowledge creation (Paavola et al. 2004) •Examining new solutions (Engström 1996; 2004) 	<ul style="list-style-type: none"> •Professional knowledge (Le Maistre & Pare 2002) •Acquisition of knowledge (Sfard 1998)
COOPERATING	ORGANIZATION		
<ul style="list-style-type: none"> •Entrepreneurship (Frese 2009) •Skills needed in job (Eraut 2004) •Understanding (Eraut 2004) •Episodic knowledge (Bereiter 2002) •Generic skills (Eraut 2004) 	<ul style="list-style-type: none"> •General knowledge (Eraut 2004) •Regulative knowledge (Bereiter 2002) •Decision making and judgement (Eraut 2004) 		
COOPERATIVE		ORGANIZATIONAL	
CONSTRUCTING	RESOURCES	COOPERATING	ORGANIZATION
<ul style="list-style-type: none"> •Effectuation (Saravathy 2008) •Expansive learning (Engström 1996; 2004) 	<ul style="list-style-type: none"> •Capabilities •Resource-based view (Penrose 1959) 	<ul style="list-style-type: none"> •Implementing new practices developed through dialogue between community members (Engström 1996; 2004) •Participation metaphor (Sfard 1998) •Interacting "ba" (Nonaka & Konno 1998) •Exercising "ba" (Nonaka & Konno 1998) •Learning organization (Senge 1990) 	<ul style="list-style-type: none"> •Cyber "ba" (Nonaka & Konno 1998) •Knowledge management (Coleman 1999) •Consolidating new practices (Engström 1996; 2004)
COOPERATING	ORGANIZATION		
<ul style="list-style-type: none"> •Interactive processes and interaction (Senge 1990) •"Ba" learning environment (Nonaka & Konno 1998) 	<ul style="list-style-type: none"> •Transfer of knowledge (Eraut 2004) •Model of innovative knowledge communities (Hakkarainen et al. 2004) 		

Fig. 2. The framework of effectuate education expertise

The three perspectives (individual, cooperative and organizational) are intertwined, but each reveals different aspects of education expertise. The four viewpoints stand as different aspects of education expertise.

Discussion

As we mention at the beginning of this article, we set out to determine what effectuate education expertise is. Based on our theoretical analysis, we propose that effectuate education expertise consists of three perspectives: individual, cooperative and organizational. In turn, these three perspectives can be understood in four ways. Our conceptual study combines the theories of education (learning and expertise) and entrepreneurship (such as resource-based theory and capability theories, and effectuation).

Integral theory has mostly been used in future researches, probably because of its holistic perspective and openness towards the future. However, when seen from the effectual perspective, the integrative approach has potential to enrich the methodological, theoretical and empirical aspects of entrepreneurship research. In this study we adopted an integrative approach and applied it to produce a model for education expertise. Our research contributes to the notion of Venkataraman et al. (2012) by suggesting that when looking at entrepreneurship as a science of the artificial, one way to combine this new research stream with the old one is through integration.

As a theoretical contribution as well as a practical implication we argue that first of all our suggested effectuate educational expertise is important because it captures the intersubjectivity of the

phenomenon. It considers expertise as individually and contextually relative. Second, it contributes to the notion of simultaneous knowledge creation, connectivity, knowledge transformation and expertise. It starts from a strong foundation in the contextual needs, expanding beyond mere expertise.

Practical implications: effectuate expertise in the context of educational business. Education export is part of the global service economy, and it is considered to be a sector which broadly combines different industries. Over the last two decades, education has increasingly evolved not only into an internationalized policy field but also into an internationally traded commodity. In recent years education services has become a major export business for New Zealand, Australia, the USA and the UK, to mention but a few (Bennel & Pierce, 2003; Martens & Starke, 2008).

Integrated view of expertise is needed for example in education export. Education export expertise has not been widely studied in the educational business context. We have still little information about what organizational expertise consists of when organizing education export. Expertise cannot be shown to be properly taken advantage of by using contemporary theories that do not capture the multilevel and complex nature of education expertise. We need effectuation in order to genuinely co-create with the target of education export. Expertise does not get transferred efficiently only by telling about how things are done in another place. Ideas and good practices need to be concretized and made contextually understood in order to be enacted.

Expertise needs to be understood in various levels in order to be developed, led and spread around. Co-creation needs individuals to be aware of their expertise and capable of adapting it in different contexts. There needs to be a cultural and contextual understanding between the parties offering and receiving expertise in order to successfully adopt the functionality of the practices. What works for us does not necessarily work for them as a whole, but surely there is something we could and should learn from them.

Future implications and limitations. Alvarez and Barney (2013, 156) argue that in order to be a

unique domain, entrepreneurship should generate theories explaining phenomena very uniquely when compared to other domains. Integrative approaches have not been intentionally developed and widely used in entrepreneurship research, although there have been several suggestions for more integrative approaches. We have extended the discussion of integrative approach in entrepreneurship research by applying it to education expertise. This approach can open new areas of entrepreneurship research and challenge the contemporary perspective of problem solving by transforming that thinking to a more open-ended form, one that embraces contingencies as challenges for thinking and paths toward opportunities.

The next step in developing this model is to look empirically at experiences of education expertise and examine how they relate to our model of effectuate education expertise. Our conceptual study collected only the main ideas relating to education export and presented them as a framework. That model could itself be researched more to reveal other directions for developing education expertise.

Integrating discussions from different fields of research is highly beneficial for a) the development of entrepreneurship research, and b) new researchers who want to understand how the current trends and theories in the field relate. The integrative approach could give further possibilities to research other disruptive, innovative and multidimensional problems in the context of learning and entrepreneurship but also in education economics.

In this paper, we have argued that education expertise is a multilevel phenomenon that should be approached in an effectuate manner. We have modelled the essential aspects of effectuate education expertise. Our developed framework has theoretical implications but also the possibility to be used in real-world applications. It could be used in certain contexts to see education expertise more clearly and determine if it could be commoditized and transformed into education export. The framework of effectuate education expertise could also be further used to determine if education expertise is ready for education export.

References

1. Amit, R. & Schoemaker, P.J. (1993). Strategic Assets and Organizational Rent, *Strategic Management Journal*, 145, pp. 1-18.
2. Alvarez, S.A., Barney, J.B. & Anderson, P. (2013). Forming and Exploiting Opportunities: The Implications of Discovery and Creation Processes for Entrepreneurial and Organizational Research, *Organization Science*, 24 (1), pp. 301-317.
3. Bennel, P. & Pearce, T. (2003). The internationalisation of higher education: exporting education to developing and transitional economies, *International Journal of Educational Development*, 23, pp. 215-232.

4. Bereiter, C. (2002). *Education and Mind in the Knowledge Age*, London, Lawrence Erlbaum Associates Publishers.
5. Bereiter, C. & Scardamalia, M. (1993). *Surpassing ourselves: An Inquiry into the nature of expertise*, Chicago, Open Court.
6. Broome, M. (1993). Integrative Literature Reviews in the Development of Concepts. In *Concepts Development in Nursing. Foundations, Techniques, and Applications*. B. Rodgers & K. Knafel (Eds.); Philadelphia, Saunders Company, pp. 217-234.
7. Chandler, G. & Hanks, S.H. (1994). Market Attractiveness, Resource-based Capabilities, Venture Strategies and Venture Performance, *Journal of Business Venturing*, 9, pp. 243-260.
8. Coleman, D. (1999). *Groupware: Collaboration and Knowledge sharing*. In J. Liebowitz Knowledge management handbook, Boca Raton, Fla, CRC Press.
9. Davidson, D. (2001). *Subjective, Intersubjective, Objective*, Clarendon Press, Oxford.
10. Eisenhardt, K.M. & Santos, F.M. (2001). *Knowledge-based view: a new theory of strategy?* In Handbook of Strategy and Management. T.H. Pettigrew & R. Whittington (Eds.). London, Sage, pp. 139-164.
11. Engeström, Y. (1987). *Learning by expanding*, Helsinki, Orienta Consulting.
12. Engeström, Y. (1999). *Activity theory and individual and social transformation*. In Miettinen, R., Engeström, Y., Punamäki, R-L., (Eds.), *Perspectives on activity theory*. Cambridge, Cambridge University Press, pp. 19-38.
13. Engeström, Y. (2004). New Forms of learning in co-configuration work, *Journal of Workplace Learning*, 16, pp. 11-21.
14. Eraut, M. (2004). *Transfer of knowledge between education and workplace settings*. In Workplace learning in context. H. Rainbird, A. Fuller, & A. Munro (Eds.), London, Routledge, pp. 201-222.
15. Esbjörg-Hagens, S. (2010). *An Overview of Integral Theory: An All-Inclusive Framework for the Twenty-First Century*. In Integral Theory in Action: applied, theoretical, and constructive perspectives on the AQAL model. Esbjörg-Hagens, S. (ed.) 2010. State University of New York Press, Albany, USA, pp. 33-61.
16. Floyd, S.W. & Wooldridge, B. (1999). Knowledge creation and social networks in corporate entrepreneurship: the renewal of organizational capability, *Entrepreneurship Theory and Practice*, 23, pp. 123-143.
17. Foss, N.J. (1996). Knowledge-based Approaches to the Theory of the Firm: Some Critical Comments, *Organization Science*, 7, pp. 470-476.
18. Foss, N.J. (2003). Bounded Rationality and Tacit Knowledge in the Organizational Capabilities Approach: an Evaluation and a Stocktaking, *Industrial and Corporate Change*, 12, pp. 185-201.
19. Frese, M. (2009). *Toward a Psychology of Entrepreneurship: An Action Theory Perspective Foundations and Trends in Entrepreneurship*, 5 (6). Hanover, MA, now Publishers Inc., pp. 437-496.
20. Grant, R.M. (1996). Toward a knowledge-based theory of firm, *Strategic Management Journal*, 17, pp. 109-122.
21. Hakkarainen, K., Palonen, T. & Paavola, S. (2002). *Three perspectives studying expertise*. In Keeping Learning Complex: Proceedings of the Fifth Conference of Learning Sciences (ICLS). P. Bell, R. Stevens & T. Satwicks (Eds.), Mahwah, NJ, Erlbaum, pp. 131-138.
22. Hakkarainen, K., Palonen, T., Paavola, S. & Lehtinen, E. (2004). *Communities of Networked Expertise. Professional and Educational Perspectives*, Oxford, Elsevier Ltd.
23. Helle, L., Tynjälä, P. & Olkinuora, E. (2006). Project-based learning in post-secondary education – theory, practice and rubber sling shots, *Higher Education*, 51, pp. 287-314.
24. Hoang, H. & Antoncic, B. (2003). Network-based research in entrepreneurship: A critical Review, *Journal of Business Venturing*, 18, pp. 165-187.
25. Johannisson, B. (2002). *Networking and entrepreneurial growth*. In The Blackwell Handbook of Entrepreneurship. D.L. Sexton & G. Landström (Eds.), Oxford, Blackwell Publishing, pp. 368-386.
26. Kogut, B. & Zander, U. (1992). Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology, *Organization Science*, 3, pp. 383-397.
27. Kuhn, T.S. (2012 [1962]). *The Structure of Scientific Revolutions*, 50th Anniversary Edition, The University Chicago Press.
28. Lave, J. & Wenger, E. (1991). *Situated learning. Legitimate Peripheral participation*, Cambridge, Cambridge University Press.
29. Le Maistre C. & Pare, A. (2006). *A Typology of the Knowledge Demonstrated by Beginning Professionals*. In Higher education and work: Collaborations, confrontations and challenges. P. Tynjälä, J. Välimaa & G. Boulton-Lewis (Eds.), Amsterdam, Elsevier, pp. 103-113.
30. Leslie, W.S. & Kargon, R. (2006). Exporting MIT. Science, Technology, and Nation-Building in India and Iran. *OSIRIS*, 21, pp. 110-130.
31. Levinthal, D.A. & March, J.G. (1993). The myopia of learning, *Strategic Management Journal*, 14, pp. 95-112.
32. Martens, K. & Starke, P. (2008). Small Country, Big Business? New Zealand as Education Exporter, *Comparative Education*, 44, pp. 3-19.
33. Martin, R.L. (2009). *The opposable mind: Winning Through Integrative Thinking*, Boston, MA, Harvard Business School Publishing.
34. Murphy, P.J., Liao, J. & Welsch, H.P. (2006). A Conceptual History of entrepreneurial thought, *Journal of Management History*, 12, pp. 12-35.

35. Nonaka, I. & Konno, N. (1998). The Concept of 'Ba': Building a foundation for knowledge creation, *California Management Review*, 40, pp. 40-50.
36. Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-Creating Company. How Japanese companies create the dynamics of innovation*, NY, Oxford University Press.
37. Nonaka, I., von Krogh, G., Voelpe, S. (2006). Organizational knowledge creation theory: Evolutionary paths and future advances. Review paper, *Organization Studies*, 27 (8), pp. 1170-1208.
38. Paavola, S., Lipponen, L. & Hakkarainen, K. (2004). Models of innovative knowledge communities and three metaphors of learning, *Review of Educational Research*, 74, pp. 557-576.
39. Penrose, E.T. (1959). *The Theory of the Growth of the Firm*, NY, Wiley.
40. Penrose, E.T. (1995). *Introduction to the Theory of Growth of the Firm*, Oxford, Oxford University Press.
41. Salvato, C., Williams, M. & Habbershon, T. (2002). *Values and Competitive Advantage: The Cultural Determinants of Dynamic Capabilities in Family Firms*. In *The Future of Family Business: Values and Social Responsibility*. M. Koiranen & N. Karlsson (Eds.), Helsinki: Family Business Research Forum Proceedings, pp. 41-66.
42. Sarasvathy, S.D. & Dew, N. (2005). New market creation through transformation, *Journal of Evolutionary Economics*, 15, pp. 533-565.
43. Sarasvathy, S.D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency, *Academy of Management Review*, 28, pp. 243-263.
44. Sarasvathy, S.D. (2008). *Effectuation: Elements of Entrepreneurial Expertise*, New Horizons in Entrepreneurship: Northampton, MA, Edward Elgar.
45. Sautet, F.E. (2000). *An Entrepreneurial Theory of the Firm*, London, Routledge.
46. Schultz, M. & Hatch, M.J. (1996). Living with Multiple Paradigms: The Case of Paradigm Interplay in Organizational Culture Studies, *Academy of Management Review*, 21, pp. 529-557.
47. Senge, P.M. (1990). *The fifth discipline: the art and practice of the learning organization*, NY, Doubleday /Currency.
48. Sfard, A. (1998). On two metaphores for learning and the dangers of choosing just one, *Educational Researcher*, 27, pp. 4-13.
49. Shane, S. & Venkataram, S. (2003). The Promise of Entrepreneurship as a Field of Research, *Academy of Management Review*, 25, pp. 217-226.
50. Shane, S. (2003). *A General Theory of Entrepreneurship. The Individual-Opportunity Nexus*, Cheltenham, UK, Edgar Elgar.
51. Steier, L. & Reya, T. (2002). *Creating and Sustaining Capabilities in Family Firms: Family Businesses as 'Values Incubators'*. Values and Competitive Advantage: The Cultural Determinants of Dynamic Capabilities in Family Firms. In *The Future of Family Business: Values and Social Responsibility*. M. Koiranen, & N. Karlsson (Eds.), Helsinki: Family Business Research Forum Proceedings, pp. 371-388.
52. Teece, D.J., Pisano, G. & Shuen, A. (1997). Dynamic Capabilities and Strategic Management, *Strategic Management Journal*, 18, pp. 509-533.
53. Tynjälä, P., Slotte, V., Nieminen, J., Lonka, K. & Olkinuora, E. (2006). *From university to working life: Graduates' workplace skills in practice*. In *Higher Education and Working Life – Collaborations, confrontations and challenges*. P. Tynjälä, J. Välimaa & G. Boulton-Lewis (Eds.), Amsterdam: Elsevier, pp. 73-88.
54. Van de Ven, A.H. & Poole, M.S. (1995). Explaining Development and Change in Organizations, *Academy of Management Review*, 20, pp. 510-530.
55. Venkataraman, S., Sarasvathy, S.D., Dew, N. & Forster, W.B. (2012). Reflections on the 2010 AMR decade award: Whither the promise? Moving forward with entrepreneurship as a science of the artificial, *Academy of Management Review*, 37, pp. 21-33.
56. Volberda, H.W. (2004). Crisis in Strategy. Fragmentation, integration or synthesis, *European Management Review*, 1, pp. 35-42.
57. Voros, J. (2007). Towards an 'Integral' View of Entrepreneurship, *Journal of Futures Studies*, 12, pp. 5-22.
58. Vosniadou, S. (Ed.) (2008). *International handbook of research on conceptual change*, London, Routledge.
59. Walker, L.O. & Avant, K.C. (1988). *Strategies for theory construction in nursing*. Norwalk, Connecticut, Appleton & Lange.
60. Wenger, E. (2000). *Communities of practice. The key to knowledge strategy*. In *Knowledge and Communities*. E.L. Lesser., M.A. Fontaine & J.A. Slusher (Eds.), Boston, MA, Butterworth Heinemann, pp. 3-51.
61. Wilber, K. (1997). An Integral Theory of Consciousness, *Journal of Consciousness Studies*, 4, pp. 71-92.