Chapter 46
Labour Market Uncertainty and Career Perspectives: Competence in Entrepreneurship Courses

Olivier Toutain and Alain Fayolle

46.1 Introduction

Nowadays entrepreneurship is high on the agenda of many countries, and the number of entrepreneurship education initiatives is growing fast. Since the beginning of the third millennium, European Union institutions (European Commission 2003, 2009, 2010, 2013), OECD (2010) and national governments across the European Union have become increasingly involved in entrepreneurship education. The various schemes and initiatives address primarily two broad objectives, on the one hand, supporting new business start-ups and, on the other hand, developing an entrepreneurial mindset in society (and among the young in particular). For example, an international survey conducted by the European Commission shows that 87% of European higher education institutions and universities offer entrepreneurship education programmes (European Commission 2008a).

Thus, expectations towards entrepreneurship are gaining momentum in Western societies and mostly revolve around two broad issues: (1) How to increase the number of start-ups in order to strengthen the creation of economic wealth and social value? (2) How to educate and train people in order (a) to foster entrepreneurial attitudes and behaviours, (b) to develop the type of skills necessary to start and develop business projects and (c) to develop adaptation mechanisms to cope with an uncertain and unpredictable world?

Since the Lisbon European agreements (Convention on the Recognition of Qualifications concerning Higher Education in the European Region 1997 – enforced as of 1 February 1999) some 15 years ago, many entrepreneurship

O. Toutain (✉)
University of Burgundy Franche-Comté, Burgundy Business School-CEREN, Dijon, France
e-mail: olivier.toutain@escdijon.eu

A. Fayolle
EM Lyon Business School, Lyon, France

M. Mulder (ed.), *Competence-based Vocational and Professional Education*, Technical and Vocational Education and Training: Issues, Concerns and Prospects 23, DOI 10.1007/978-3-319-41713-4_46

education programmes have emerged (Eurydice 2012). However, empirical studies have yet to identify clearly what entrepreneurial competencies are targeted by these programmes, which leads us to ponder how these competencies are defined and, above all, who designs and teaches these entrepreneurship education programmes.

Most current scientific studies concerned with entrepreneurial competencies focus on their role in business start-up and growth, and so far they have failed to yield consensual results or a coherent taxonomy of expected competencies (Mitchelmore and Rowley 2010).

In the field of entrepreneurship education, teaching programmes are developed based on criteria that relate to four main questions (Fayolle and Gailly 2008): (1) What types of courses will the programme include (disciplines, contents)? (2) How will entrepreneurship be taught (pedagogical tools and methods)? (3) What learner profile is targeted (discipline, age, psychological profile, background and experience in entrepreneurship)? (4) Why and for what outcomes is entrepreneurship taught (objectives and evaluation)? Most studies suggest that higher education entrepreneurship programmes are widely influenced by cognitivist and socio-cognitivist theories (Byrne et al. 2014). Therefore, pedagogies used often include experiential learning, learning-by-doing, serious games, case studies, problem-based learning and project development. However, despite the contributions of the aforementioned studies, the field still lacks a clear understanding of the competencies developed in these courses.

In addition, the vast majority of available research is undertaken mostly within the context of higher education, due to the proximity between researchers and the education ecosystems of the universities and colleges in which they work (Ruskovaara 2014).

Finally, introducing entrepreneurship education in vocational training institutions is still a recent phenomenon, despite long-standing recommendations (Gibb 1996).

Consequently, as we will see in this chapter, the definition of entrepreneurial competencies in vocational and professional education stems in large part from scientific research conducted in the context of higher education. Reviewing the definition of entrepreneurial competencies raises questions (related to the learning object, the nature of the learning context, the teacher's profile and the pedagogies implemented) that extend beyond specific teaching contexts and that concern all teachers involved in entrepreneurship education.

While the entrepreneurial competencies expected in schools relate more to the development of entrepreneurial attitudes and behaviours than to starting a business, expectations in vocational training centres involve a combination of entrepreneurial attitudes, behaviours and technical skills with a view to starting a new business (Ruskovaara 2014).

This chapter constantly moves back and forth between the learning contexts of vocational and professional (higher) education. The various sections should therefore be considered as being addressed primarily to researchers and teachers, as well as school heads of education and teachers and vocational training institutions.

We will first present a state-of-the-art review of entrepreneurship education today. We will examine more particularly how entrepreneurship education is discussed among the academic community. We will thus show how the entrepreneurship learning process and, as a result, expected competencies are defined by a complex interaction between the teacher, the learning object and the environment.

In the second part of this chapter, we will discuss future trends in entrepreneurship education and expected competencies in higher education and vocational institutions. The increasing individualisation of training programmes, in which learners have to take responsibility for what they learn, the growing professional mobility and the need for lifelong education lead to the transformation of the learner into an entrepreneur from an ever-earlier age, an entrepreneurial posture that is highly valued among recruiters and institutions. According to scholars, the success of the twenty-first-century education relies on the capacity of schools and vocational training centres to help learners acquire entrepreneurial competencies, which require them to take control and self-direct their own learning process. Self-directing one's learning process implies the development of meta-competencies, which enable learners to act in contexts of uncertainty and unpredictability. The type of competencies expected in this approach to learning mostly relates to the acquisition of soft skills, such as autonomy, creativity, calculated risk-taking, cooperation and adaptation to the environment.

46.2 What Do We Know About Entrepreneurship Education and Entrepreneurial Competencies?

Entrepreneurship as a discipline has its roots outside of school, in processes of human action that create economic, social or cultural value, driven by the will to develop projects.

As we will see in this section, targeted competencies differ depending on:

(1) The learner's personal commitment (or the degree of student freedom and control in the learning process)
(2) The learning object (new business start-ups or the transformation of the individual through the acquisition of an entrepreneurial mindset and behaviour)
(3) The learning environment (nature of the learning ecosystem moving back and forth between the classroom and a strong connection with the real world, with partnerships and outside experiences)
(4) The role of the teacher (source of knowledge, facilitator and/or coach)

The three elements of any education scheme (the learning object, the environment and the teacher) interact with the learner who, as a result, acquires technical or behavioural competencies, with more or less freedom depending on whether the

approach is prescriptive (acquisition of technical knowledge, execution of tasks) or open-ended (learning how to act) (Le Boterf 2013; Toutain 2008, 2010). These competencies then influence the transformation of the learner's behaviour, cognition and knowledge (Toutain 2010).

The rapid expansion of entrepreneurship in higher education and vocational training institutions goes hand in hand with a great diversity in the way that programmes are developed and taught and how objectives are defined (Béchard and Grégoire 2005; Rizza and Varum 2011). These initiatives respond generally to a need, which consists in training students to start and grow businesses or to develop an entrepreneurial mindset, which implies developing a general attitude that can be of use in any personal and/or professional experience. These two didactic definitions relate to the acquisition of different competencies. The first type of competence relates to the kind of know-how necessary to start up and develop a business, whereas the second one relates more to knowing 'how to act entrepreneurially' (Fig. 46.1).

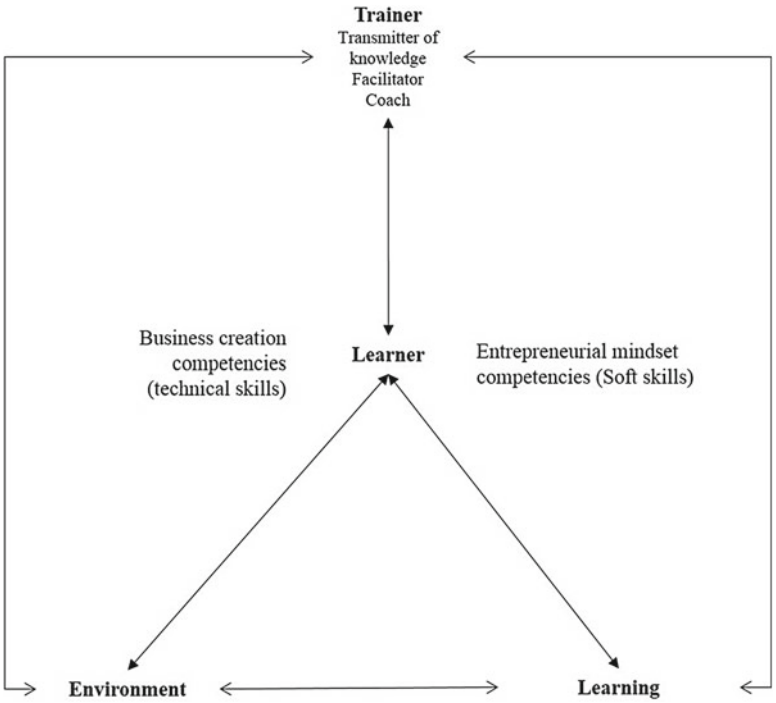

Fig. 46.1 Process of acquiring entrepreneurial competencies

46.2.1 The Learning Object

46.2.1.1 Competencies Related to New Business Start-Up

As mentioned above, some entrepreneurship teaching programmes focus on training individuals to become entrepreneurs and start their own business. Skills such as networking, developing business plans and business models, managing financial and human resources, devising a marketing strategy or even choosing between different legal and fiscal business forms are all useful for turning learners' projects into reality. In this context, education programmes are mostly focused on acquiring and developing skills as well as engaging with a network of potential partners linked to business start-up and management. The acquisition of expertise and technical skills is therefore essential in order to enable individuals to set up their own business and thus become entrepreneurs, and knowledge transfer is the predominant approach. The mission of the school or university is to impart a determined set of skills and 'truths' rather than to educate. This approach to learning is more particularly associated with the French educational model as championed by Durkheim (Behrent 2014). For the French sociologist, education goes hand in hand with method and rigour, whereby individuals are trained to think critically and reason based on a proven body of knowledge. According to this 'teaching paradigm', the learner is expected to read, use deductive reasoning, provide logical and rational argumentation and display well-structured thinking (Barr and Tagg 1995) with particular reference to business start-up and development.

46.2.1.2 Competencies Related to an Entrepreneurial Mindset

In the second type of entrepreneurship education initiatives, courses aim at training students to develop an entrepreneurial mindset, which can be defined as the acquisition of a dynamic set of attitudes, values and cross-disciplinary competencies. In this case, learning relies mostly on the acquisition of soft skills, including abilities and attitudes such as motivation, self-confidence, adaptability to uncertain environments, identification of resources in the environment, risk evaluation, creativity, projection, empowerment, leadership, teamwork or even self-reflection. Learners are encouraged by teachers to be proactive. Specific competencies expected thus include the identification of opportunities and the development of realistic innovative projects, the ad hoc commitment and management of resources, as well as selling the business concept. In this paradigm, the role of the teacher is to help transform learners (Mezirow 1997) in order for them to acquire these competencies, which requires time and appropriate mentoring. Transformation here refers to the way learners transform experience into learning, by changing their ways of acting and of viewing the world and also by changing their frames of reference. In other words, it is the whole process by which knowledge is created that is transformed (Harrison

and Leitch 2005). The theoretical underpinning of this approach to learning stems from Dewey's founding work (Dewey 2012). In this model, schools and universities tend to educate through feeling and experience, which means that individuals learn by making sense of their everyday experience. The concept of entrepreneurial education thus takes on its full meaning, what Barr and Tagg term the 'learning paradigm', as opposed to the 'teaching paradigm' (Barr and Tagg 1995).

46.2.1.3 Competencies Related to Didactic Models

The two didactic models presented above define different approaches to teaching entrepreneurship. Yet, didactic objectives are rarely addressed before pedagogical approaches are determined (Byrne et al. 2014; Naia et al. 2014). Most publications in the scientific literature discuss methods for teaching entrepreneurship without explicitly addressing the link between the didactic objectives and the methods examined, which makes them difficult to compare objectively (Blenker et al. 2011). In order to see through this diversity of practices, Béchard and Grégoire (2005) suggest using Bertrand's typology (Bertrand 1995) of the four main components of contemporary theories of education: (1) the contents of education, (2) the interaction between education and society, (3) person-centred approaches 'personalist approaches' (personalist theory) and (4) interactionist approaches (psychocognitive, sociocognitive and technological).

From an academic perspective, Honig (2004) and Neck and Greene (2011) suggest that schools, universities and students in entrepreneurship first define the way they view entrepreneurship education. Fayolle and Gailly (2008) propose a conceptual framework incorporating two complementary levels of analysis (ontological and educational). The ontological level relates to the following questions: What does entrepreneurship education mean? What does education mean in the context of entrepreneurship? What are the respective roles of educators and participants? Fayolle explores the question further and suggests three strategies for the future development of entrepreneurship education (Fayolle 2013): (1) target entrepreneurship education by incorporating entrepreneurial culture, reasoning, action, method and *bricolage* (tinkering) in order to enable participants to think, act and make decisions in a wide range of situations and contexts; (2) connect entrepreneurship teaching with other disciplines (more especially with education science) and real-life entrepreneurial action as experienced by entrepreneurs themselves (more particularly with regard to how they solve problems); and (3) adopt a systematically critical and reflexive approach to scientific and academic knowledge (from different disciplines) and the different initiatives in entrepreneurship education.

From a more pragmatic perspective, Blenker et al. (2011) suggest connecting the 'what', the 'why' and the 'how' by asking educators and teachers to answer one or more of the following questions (which they should have previously selected): How do you train individuals (1) to start new ventures? (2) to create high-growth firms?

(3) to solve a large range of societal issues, by thinking and acting entrepreneurially? and (4) to develop an entrepreneurial mindset?

In short, the learning object is above all determined by the didactic goal of entrepreneurship education (the 'why'), which translates primarily into two complementary visions of teaching and entrepreneurship: learning how to start and develop a business and developing an entrepreneurial mindset. In the first case, the acquisition of technical entrepreneurial competencies is critical, whereas in the second case, the focus is on developing soft skills. Depending on the didactic approach selected, teachers will opt for different teaching strategies. The acquisition of technical skills relies more on prescriptive tasks (students mobilise knowledge to solve specific problems), whereas the development of the soft skills necessary to develop an entrepreneurial mindset requires students to show initiative and to be creative, cooperative and autonomous in order to find solutions (which are not determined at the outset).

46.2.2 The Environment

The environment plays a key role in the success of pedagogical practices and the individual's self-development throughout the learning process: it is a key resource for learning and a collective construction of competencies.

46.2.2.1 The Environment: A Key Resource for Learning

The learner's environment is composed of the people at school, members of their family circle and more generally members of their social networks. The influence of the environment in the learning process has been widely studied in education science, most notable in the latter half of the twentieth century by Vygotsky and Piaget. According to Vygotsky, the members of the learner's social networks (primarily the teacher) play a key role in the development of the learner's knowledge (Vygotsky 2012). With the concept of 'zone of proximal development' (refers to what tasks a child (or a student) can perform when given appropriate help or guidance), Vygotsky insists on the role of social mediation in the individual's learning process. In other terms, the people who interact with the learner play an important role as regulators of the learning process: they facilitate the acquisition of competencies by the individual. As for Piaget, an individual learns from interacting with his or her environment and thanks to what he called the 'progressive equilibration' process, whereby the individual acquires the necessary competencies (Piaget 1975). In other words, when a learner does not possess the required knowledge to solve a problem, he or she finds himself or herself in an uncomfortable situation that Piaget defines as 'cognitive disequilibrium'. The learner thus strives to re-establish equilibrium by

interacting with the actors in his or her environment in order to find a solution to his or her initial problem; the solution is therefore a source of new knowledge. The learner thus finds himself or herself once more in a state of cognitive equilibrium; this is what Piaget calls the 'progressive equilibration' process (Toutain 2010).

In the field of entrepreneurship education, the nature of expected competencies also determines how much freedom of action the learner has. If the expected competence is of a technical nature (for instance, how to draw up a financial statement), there will be fewer interactions between the learner and the various actors in the environment, and the mediating role therefore lies mostly with the teacher. However, if the expected outcomes are the generation of new creative ideas, learners will find themselves in a more open-ended learning process (less constrained by resolution rules) in which interactions with the environment and the educator will play a greater role. Pedagogical practices are also determined by the degree of openness of the learning process: open-ended processes will tend to rely mostly on active pedagogies and learning-by-doing, whereas prescriptive or closed approaches will rely more on transmissive pedagogies.

46.2.2.2 A Collective Construction of Competencies

It is widely acknowledged among scholars, and more especially in the French education science literature, that the environment plays a significant role in the construction of competencies (Bain 2002; Bellier 2000; Le Boterf 2013; Durand 2006; Gorz 2001; Oiry 2005; Perrenoud 2002; Rey 1996; Stroobants 2002; Zarifian 2004). The learning process thus generates a double transformation: that of the learner who acquires new knowledge in order to solve the problems encountered (e.g. locating information regarding financial aids to set up an innovative business) and that of the environment, whose actors also acquire new knowledge (e.g. the launch of a new innovative business). Interaction between the learner and the environment thus produces mutually reflexive outcomes for the learner and the members of his or her environment.

By taking initiatives, the learners contribute to the construction of a collective form of competence, based on the sharing – active or passive – of experiences. Le Boterf (2013) speaks of a 'shared environmental resource', an expression borrowed from the field of ergonomics.

In order to solve problems in complex entrepreneurial situations, learners are encouraged to acquire the necessary skills to act collectively and learn how to combine the resources present in the environment in order to obtain the knowledge they need (Toutain 2007). Consequently, competencies are constructed, developed and tested through action (Bellier 2000), which translates rather well the idea of 'doing in order to understand, and understanding in order to do' (Avenier 2000). In this context, expected competencies are the result of a socio-constructivist (Löbler 2006) and collectivist vision of the entrepreneurial process (Jones and Spicer 2009).

This constructivist approach requires educators and heads of programmes in entrepreneurship education to develop and utilise the entrepreneurial ecosystem by creating close collaboration networks (Tuunainen 2005), thus transforming their schools or universities into entrepreneurial universities (Clark 2001). The entrepreneurship education ecosystem, which influences the nature of the expected competencies (open-ended or closed/prescriptive competencies, related to knowledge, know-how or knowing how to be), can be defined by five dimensions (Mueller et al. 2014; Toutain et al. 2014a: the type of entrepreneurship programme (focused on developing creativity and transversal knowledge/technical knowledge), the nature of the networks developed (inside and outside the school context), the dedicated learning space (open and collaborative/closed and individual), the type of entrepreneurial culture targeted (business management/entrepreneurial mindset) and the pedagogical solutions adopted (transmission learning/experiential learning).

In short, the actors of the environment are stakeholders of the entrepreneurial learning process. If the object of learning is to acquire the technical knowledge necessary to set up a business, then interaction with actors in and out of the school will be limited and the teacher will be at the core of the learning process. This approach relates closely to an instructional (transmissive) model of education. However, if the aim of the training programme is to acquire an entrepreneurial mindset or study the feasibility of a project, the learning process is more open. In this case, learners will maximise interactions with the actors in their environment, which leads to a more collective competence-building process: learners and actors of the environment collaborate in order to find solutions to the problems they encounter. Finally, the effectiveness of the role played by environmental actors also depends on the education ecosystem involved: the more open-ended the learning approach (for instance, if geared towards acquiring an entrepreneurial mindset), the more determinant the quality of the education ecosystem in order to help the learner acquire useful soft skills.

46.2.3 The Educator

The teacher plays a crucial role in teaching entrepreneurship education. Its role varies from the one who transmits knowledge to the facilitator who guides the learner. Beyond this role we know very little about who teaches entrepreneurship (subsection 1) and what is their profile (subsection 2).

46.2.3.1 Who Teaches Entrepreneurship?

Entrepreneurship teaching programmes have developed exponentially in higher education, more particularly in schools of management. For example, a recent international survey of entrepreneurship in higher education institutions shows that 87%

of European higher education institutions (schools and universities) offer courses or programmes in entrepreneurship (European Commission 2008a).

Although still in an early phase, the phenomenon is also spreading across vocational training institutions. In Europe, between 3 and 4% of primary schools, 11% of secondary schools and 15% of vocational training centres have taken initiatives towards developing an entrepreneurial mindset.

Given the objectives defined by such international institutions as the European Union (European Commission 2012, 2013), the trend is likely to consolidate over the next decade. This evolution leads researchers to examine the nature of entrepreneurship education programmes that are being developed in European schools. In this regard, Byrne et al. (2014) and Naia et al. (2014) show that most extant research focuses on what to teach in entrepreneurship, how (with what kind of activities or methods) and/or for what results (impact studies). However, there is, first of all, a lack of understanding about why we should teach entrepreneurship (objectives are often too general and lack substance), and the issue of 'who' teaches entrepreneurship is not addressed. Indeed, other than the fact that they are teachers, we know very little about the profiles of the individuals who teach entrepreneurship (Fayolle 2013; Löbler 2006). Aside from a recent study on entrepreneurship teacher profiles in primary and secondary schools (Ruskovaara 2014), most research on entrepreneurial competencies is student focused (Hynes and Richardson 2007). Yet, if we are to understand the didactic objectives and training methods used in entrepreneurship education, we also need to understand better the profiles of entrepreneurship educators and teachers, the way they view entrepreneurship and how they define entrepreneurship education.

46.2.3.2 A Profile of the Entrepreneurship Teacher

Current research in entrepreneurship education (Mueller et al. 2014; Raucent et al. 2003; Surlemont et al. 2009; Toutain 2010; Toutain et al. 2014a, b) is more focused on the expected profile of entrepreneurship educators than on examining the actual profiles of teachers in entrepreneurship. The present dominance of constructivist and socio-constructivist approaches in entrepreneurship teaching has led researchers to draw the following profile of the typical entrepreneurship teacher, who (1) possesses both teaching and entrepreneurial experience, (2) has skills in leadership and team management, (3) develops networks in and outside the school and (4) acts more as a coach and facilitator than as a transmitter of knowledge. Besides the characteristics listed above, it is important to note that heads of entrepreneurship programmes may sometimes be perceived as dissidents in standardised educational systems (Mueller et al. 2014).

The profile of the entrepreneurship teacher is mostly defined with regard to that of the higher education teacher (Ruskovaara 2014). According to the European Commission (2008b), the ideal teacher in entrepreneurship possesses both entrepreneurial and academic experience and knows how to connect both worlds in his or

her entrepreneurship programme. When teachers do not possess first-hand entrepreneurial experience, inviting real-life entrepreneurs as contributors is indispensable.

Consequently, teachers who have extensive entrepreneurial and academic experience will tend to adopt a more socio-constructivist approach, and students will be encouraged to take risks in contexts of uncertainty and *bricolage*. The role of the teacher is thus one of facilitator and coach, while students are handed over control of their own learning process. As a result, a teacher's prior academic and entrepreneurial experience impacts more strongly his or her vision of entrepreneurship education than other criteria such as age, gender and discipline (Ruskovaara 2014).

Due to the recent emergence of entrepreneurship awareness programmes in schools across Europe, there is no available study on *who* teaches entrepreneurship. However, early analysis of the data collected by the 'Entrepreneurship 360°' programme (under joint management of the OECD and the European Union; OECD and European Commission 2014) shows that two profiles of entrepreneurship teachers seem to coexist. One profile is that of the school teacher, whose intervention is transversal across the school curriculum through entrepreneurship teaching, and the second profile is that of an outside actor (member of an association or an institution or a business owner) who uses his or her social network to connect with and intervene in the school. In most cases, both join forces to offer entrepreneurial programmes inside and outside of the school. More generally, this joint initiative of the OECD and the European Union aims at providing schools with reflective tools in order to help them develop entrepreneurship awareness and identify internal and external actors who may take on a leadership role in meeting these objectives. In other words, teachers and heads of programmes who do not possess the necessary entrepreneurial experience tend to use resources – notably human – from outside the school, by engaging the help of entrepreneurs and organisations who work hand in hand with them.

To sum up, no study has yet closely looked into who is in charge of teaching or managing entrepreneurship courses. The available body of knowledge is mostly limited to the expected or ideal profiles of entrepreneurship teachers, which are mostly developed based on constructivist and socio-constructivist approaches. The ideal type of entrepreneurship teacher in higher education consists in being more of a facilitator, a leader, a creative entrepreneur and a network developer. While 15% of vocational training institutions in Europe propose entrepreneurship courses, primary and secondary schools remain far less concerned by entrepreneurship education. However, the early data collected on a European scale seems to show that entrepreneurship education should involve a great diversity of teacher profiles, ranging from the traditional teacher to the visiting entrepreneur.

46.3 What's Next? Towards Entrepreneurial Competencies Based on Uncertainty and Self-Regulated Learning

The entrepreneur is at the heart of the phenomenon. He/she evolves in a socio-economic environment in order to create and develop new economic and social wealth. This environment is constantly changing. This allows the entrepreneur to permanently adapt his/her decisions and actions to the changes without predicting the future. In this context, the core issue in entrepreneurship education is (1) to acquire competencies based on the management of uncertainty (subsection 1) and (2) to self-regulate learning (subsection 2).

46.3.1 Dealing with Uncertainty

In the first – and only – special issue devoted to 'entrepreneurial learning' (July 2005), Harrison and Leitch (2005) start by writing that 'It is important to recognize that there is a fundamental distinction to be drawn between knowledge – that which is known, and learning – the process by which knowledge is generated'.

The dominant approach in schools and vocational training centres consists in raising cultural awareness of entrepreneurship and developing an entrepreneurial mindset in individuals, an outcome which is strongly supported by national and international institutions (European Commission 2013; OECD 2010). Among the four strategic objectives defined by the framework for European cooperation in education and training, European leaders emphasise the necessity to 'enhance creativity and innovation, including entrepreneurship, at all levels of education and training' (European Commission 2009).

Fostering an entrepreneurial mindset in individuals extends the vision of the entrepreneurial process beyond the traditional notion of business start-up. Creating entrepreneurial mindsets implies encouraging the development of entrepreneurial behaviours and attitudes and, more specifically, the development of skills such as autonomy, responsibility, creativity, cooperation, adaptation to uncertainty and unpredictability. In other words, it is about training *antifragile* individuals (Taleb 2013), who are capable of creating opportunities by identifying and utilising human, material and financial resources from the environment. This trend illustrates a strong demand in a society forced to look for new socio-economic paradigms and innovative solutions to an economy deadlocked in a never-ending cycle of exponential growth.

In the research field, the theory of effectuation (Sarasvathy 2001, 2008; Sarasvathy and Venkataraman 2011) has largely contributed to a renewed understanding of the entrepreneurial process by breaking away from the positivist scientific reasoning approach. According to the theory of effectuation, entrepreneurship should no longer be regarded as a process of planned actions in a predictable future but as a journey during which the individual develops his or her entrepreneurial project by using the resources he or she can identify. In other words, the individual

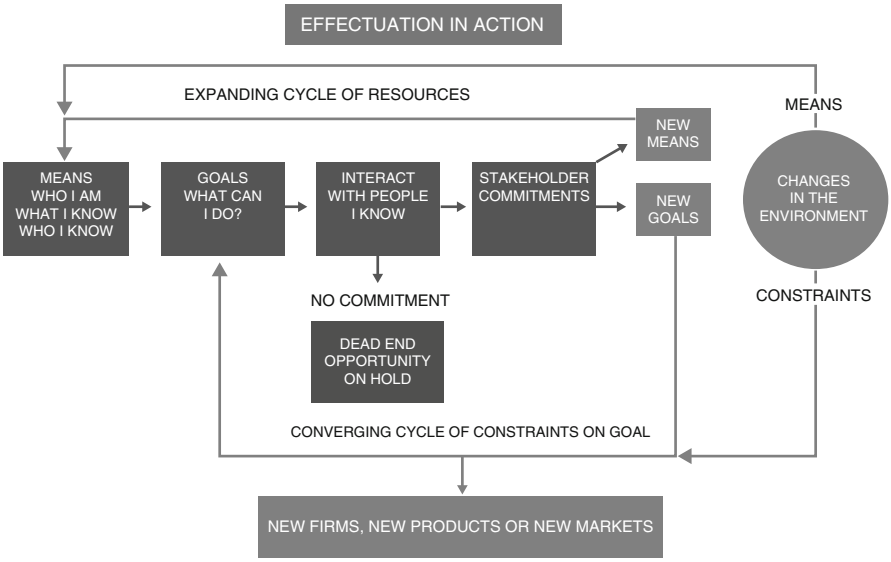

Fig. 46.2 Effectuation in action (The Society for Effectual Action (SEA) 2012)

progressively becomes an entrepreneur and develops his or her project according to the various opportunities present in the environment.

This approach, which has gained considerable popularity in the field of academic research over the past decade, invites teachers as well as the heads of educational programmes to challenge the positivist view of traditional education based on knowledge transmission. It is a priority to develop effectual reasoning skills in learners, to enable them to act in uncertain and unpredictable environments. The acquisition of these skills requires that the learners ask the following questions: (1) Who are they and what do they know? (2) What can they do? (3) Who are the stakeholders (inside and outside the school) that they can interact with? (4) What stakeholders they may engage with in order to progress? Interactions with stakeholders lead to the emergence of new means and new objectives, which in turn expand the learner's scope of learning (Fig. 46.2).

Reasoning effectually in order to develop one's entrepreneurial mindset is not a natural behaviour. In order to adopt an effectual mode of thinking, learners need to be motivated, to be in control of their learning and to feel self-efficacious in the execution of tasks. In education science, motivation, self-regulation and self-efficacy are defined by scholars as the three key elements of self-directed learning.

As will be shown in the following section, self-directed learning requires the development of skills in order for the learner to adopt effectual thinking with a view to acquiring an entrepreneurial mindset.

The three key elements of self-directed learning provide a framework for structuring entrepreneurship education programmes and expected entrepreneurial competencies, based on the acquisition of soft skills.

46.3.2 Entrepreneurial Competencies Gained Through Self-Directed Learning

46.3.2.1 Origins of Self-Directed Learning

Self-directed learning emerged in the 1970s. Its epistemological characteristics stem from cognitivist, constructivist and socio-constructivist theories in the field of education science. Self-directed learning is closely related to the foundational work of Dewey (2012), Piaget (1975) and Vygotsky (2012) and to the innovative pedagogies developed by Montessori (2012), Claparède and Avanzini (2003), Freinet (1993), Steiner and Bamford (1996) or Rogers (1969).

This type of learning relies on the initial belief that 'an adult is only willing to commit to a training programme if it responds to his or her needs and problems, in his or her situation' (Schwartz 1989). Therefore, what enables learners to take control of their learning process lies in their motivation, their capacity for action and for making sense of and giving a direction to the process. Self-directed learning also requires learners to mobilise and develop capacities to direct an 'intentional mental process' and perform 'behavioural activities', more particularly as regards the search for information (Long 1991). This learning approach thus clearly moves away from the more traditional, transmission-based, learning models. Learners are encouraged to 'train themselves': 'the key competence in the social subjects who are expected to become lifelong learners is self-direction' (Carré 2010). The cognitive and behavioural dispositions expected in learners are therefore very close to the abilities expected from entrepreneurs in order to act and adapt to uncertain and unpredictable contexts. Self-direction is the key competence to be acquired here, and it transforms the representations of education into a permanent activity, continuing throughout the learner's life.

46.3.2.2 The Three Key Elements of Self-Directed Learning

Self-directed learning relies on three key elements: self-determination, self-regulation and self-efficacy.

- Self-determination

Self-determination can be defined as the feeling, for an individual 'to be free to act, to be free to choose one's actions, to be proactive, that is to say to feel like the author of one's decisions and one's actions' (Carré 2010). The- degree of motivation in learning is therefore closely related to the feeling one has of progressing on one's own, which translates into the progression from one anterior state towards another state, deemed 'superior' (Nuttin 1980). This vision of learning is in particular based on Piaget's theory of progressing equilibration (Piaget 1975) and has been modelled to explore entrepreneurship experiential learning process (Toutain 2010).

Self-determination is key to effective self-directed learning (see the chapter of Nokelainen in this volume). However, self-regulation varies depending on the train-

ing context and the learning process involved. Drawing on existing research, more particularly that of Deci and Ryan (Deci and Ryan 2000), Carré- shows that it evolves along a continuum involving four regulatory processes (Carré 2010): controlled extrinsic motivation (for instance, the employee who engages in a training programme at the request of his or her employer), introjected extrinsic motivation (for instance, an adult who goes into training, because he or she knows he or she has to do it), identified extrinsic motivation (the learner acts on behalf of his or her personal beliefs) and, finally, integrated extrinsic motivation (the learner is fully aware of his or her freedom of choice).

Thus, the characteristics of entrepreneurship training programmes and how free the learner is to engage them in and commit to the learning process constitute the main variables that influence the intensity of the learner's motivation at the outset, but more especially its persistence over time. Indeed, initial motivation may erode if it is not supported by abilities to self-regulate the learning process. The situation is comparable, for instance, to an individual taking up a new sport. The issue of the 'maintenance' of the motivation through the learning process has been extensively studied, for example, by anthropologists Bateson and Mead (Bateson 2000).

- Self-regulation

Self-regulation is another determinant dimension of self-directed learning – 'all learners are eventually faced with a dual problem: setting down to work and sustaining their effort' (Cosnefroy 2011). Self-regulation is thus defined by the capacity of the learner to maintain his or her motivation and commitment throughout the training process.

Consequently, learners are encouraged to develop learning strategies. The ability to self-regulate their learning process – and see it through – is therefore linked to their initial motivation for learning. The opposite is also true: good self-regulation fuels the learner's motivation to persevere in the learning process. Therefore, self-determination (motivation) and self-regulation interact closely.

In his review of the literature from the past twenty years, Cosnefroy identifies three types of self-regulatory strategies (Cosnefroy 2011): (1) cognitive and metacognitive strategies (the ability to learn how to learn), (2) volitional strategies (maintenance over time of the will to learn) and (3) defensive strategies aimed at protecting one's self-esteem.

Thus, self-regulation requires the development of internal monitoring and adjusting of one's affective and cognitive states and of behavioural know-how (or the acquisition of self-learning techniques such as repeating aloud or self-interrogation).

Despite apparent proximity, self-regulation and self-direction are fundamentally distinct. While self-directed learners are very autonomous in their choices and the definition of their learning objectives, some learners may also be led to develop self-regulating abilities by performing tasks despite not having chosen freely their training programme or their learning objectives (which are in this case defined by the teacher). Consequently, a learner's ability for self-regulation is not enough to support self-directed learning.

- Self-efficacy

If motivation relates to satisfaction and self-regulation to strategy planning, self-efficacy relates to learners' beliefs in their own abilities to perform actions towards the attainment of a given goal. Self-efficacy is therefore closely related to the notion of 'competence', which results from 'the successful undertaking of projects, activities and/or meaningful tasks-' (Carré 2010).

Self-efficacy therefore requires the construction of a positive self-image, dialogically related to self-determination and self-regulation: a feeling of satisfaction enhances one's positive self-image. Thus, the ability to successfully self-regulate one's learning process reinforces one's feeling of self-efficacy, in the same way that the successful self-regulation of one's learning process, combined with strong motivation, positively impacts one's self-esteem, and therefore the feeling that one is competent.

The combination of self-determination, self-regulation and self-efficacy thus promotes what philosopher Paul Ricoeur calls 'agentivity', in other words, 'one person's power to act' (Ricoeur 1995). However, the agent is not isolated socially but self-directs his or her learning by interacting with the various resources present in the environment. The agent is thus a social subject (Bandura 1997), who depends on the context in which he or she acts, as co-producer of his or her knowledge, just like an entrepreneur in action (Jones and Spicer 2009). In other words, 'self-directed learners show initiative, independence and persistence in learning; they take responsibility for their own learning and consider problems as challenges, not obstacles; self-directed learners are capable of self-discipline and display a high level of curiosity; they have self-confidence and a strong desire to change; they are willing to apply their studying skills to organising their time and pacing themselves, and to make plans to successfully complete their work; self-directed learners are individuals who love to learn and tend to be goal-oriented' (Guglielmino 1977).

In self-directed learning, individuals are considered as social actors who show initiative and interact with their environment. The values underpinning this approach respond to society's expectations in a context of socio-economic change, uncertainty and unpredictability. Moreover, it is consistent with the principles of effectuation theory.

The development of entrepreneurship education programmes inspired by self-directed learning offers a tremendous opportunity to help students transform into enterprising individuals and/or entrepreneurs. Project-based pedagogies, learning-by-doing and problem-based learning within an effectual framework can provide an 'autonomy-supportive' learning environment (Reeve et al. 2008), conducive to self-directed learning. Self-directed learning is also key in helping learners acquire the meta-competencies required to develop an entrepreneurial mindset and learn how to negotiate their way through life in an uncertain and challenging environment.

To sum up, training individuals to acquire an entrepreneurial mindset in schools and vocational training centres leads teachers and programme managers to invent new, more transversal, ways of learning. These new principles challenge the tradition of transmission teaching based on the positivist paradigm of knowledge trans-

fer. Applied to the world of education, the theory of effectuation offers a new framework for action in order to help learners acquire entrepreneurial competencies such as autonomy, risk-taking, creativity, cooperation and the ability to adapt to an uncertain and unpredictable future. In these conditions, learners need to acquire second-order competencies (or meta-competencies), the acquisition of which is strongly related to a motivated and sustained commitment to learning, as well as the self-control of one's learning process. More generally, these entrepreneurial meta-competencies impact positively the feeling of being competent to act in situations of great uncertainty.

46.4 Conclusions

This chapter was written with two objectives in mind: (1) to present an overview of current entrepreneurship teaching approaches and expected competencies and (2) to propose a reflective framework for programme managers and educators based on emergent theoretical and pedagogical concepts in the field of entrepreneurship education. Most studies concerned with the notion of entrepreneurship competencies are conducted in the context of higher education, which means that defining expected competencies in vocational training institutions represents a new field of investigation. As a result, entrepreneurship teachers, researchers and institutional actors are encouraged to expand the field of study beyond the limits of higher education. This chapter is a contribution in this direction.

We first presented an overview of entrepreneurship education. We then showed that the competencies expected from entrepreneurial education programmes revolve around two main objectives: (1) the creation and development of new businesses and (2) the acquisition of an entrepreneurial mindset. We also underlined the fact that the entrepreneurial learning process is a complex endeavour, which requires the interaction between three key components: the teacher, the learning object (start-up/development of a new business or development of an entrepreneurial mindset) and the environment.

Entrepreneurship education is not yet widely developed in vocational training institutions (Gibb 1996; Ruskovaara 2014). However, the situation is likely to evolve rapidly in the next few years, as some countries like Finland, Sweden and Denmark, other member states of the European Union and the OECD are committed to promoting entrepreneurship education, with particular regard to the development of an entrepreneurial mindset. Besides the use of active pedagogies that place learners in situations in which they can/must act, this approach of entrepreneurship learning encourages researchers and practitioners to invent new frameworks for action, moving away from the more traditional knowledge transmission approaches. With this in mind, we have suggested using a new educational approach based on effectual reasoning as a framework for action. Effectual reasoning relates to the way one views – and acts in – the environment while accepting uncertainty and the necessity to adapt to constant change. In support of this framework, we also high-

lighted the need for learners to acquire meta-competencies in order to self-direct their own learning process. The teacher and the teaching methods used play a significant role in helping the learner to take control of his or her learning process. They are also key in enabling the learner to develop his or her sense of competence in order to become autonomous, creative, responsible and cooperative, to take calculated risks and, more generally, to act confidently in uncertain and challenging situations.

In this chapter, we have presented some key elements for guiding reflection on expected entrepreneurial competencies, based on the following questions:

- What is the objective of the entrepreneurship training programme? Learning how to set up a business or developing an entrepreneurial mindset.?
- What is the teaching approach? A 'closed' (prescriptive) pedagogical approach (mostly based on the acquisition of technical competencies) or an 'open' approach (based on the transformation of the individual)?
- What is the framework for action? A strictly scheduled and predetermined framework or one based on uncertainty and unpredictability?
- How much freedom do learners have regarding their learning process? Is there little room for self-direction (the teacher sets constraints on how tasks are to be performed), or is it mostly self-directed (great freedom is given regarding the learner's choices and learning objectives)?

The answers to these questions define the type of entrepreneurial competencies targeted. They fall into two broad categories: technical competencies, based on a positivist paradigm of knowledge transmission, or soft skills, based on a constructivist and socio-constructivist approach. An appropriate definition of these competences related to the specific context, teacher's profiles and practices are key in making entrepreneurship education become a recognised discipline and consolidating the respectability of teachers, schools, parents and, most of all, students. To this end, in addition to a better definition of expected competencies, it is also important to check that pedagogical innovations, programme contents and target objectives are in line with the field of entrepreneurship teaching (Kuratko 2005).

The current demand from institutions to train students to act entrepreneurially in a society forced to invent new socio-economic paradigms (hence the need for entrepreneurial competencies) is one of the foremost educational challenges of the next decade.

References

Avenier, M.-J. (2000). *Ingénierie des pratiques collectives. La cordée et le quatuor*. Paris: L'Harmattan.

Bain, D. (2002). De l'évaluation aux compétences : mise en perspective de pratiques émergentes. In Joaquim Dolz & Edmée Ollagnier (Eds.), *L'énigme de la compétence en éducation* (pp. 129–145). De Boeck Université.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Worth Publishers.

Barr, R. B., & Tagg, J. (1995). From teaching to learning — A new paradigm for undergraduate education. *Change: The Magazine of Higher Learning, 27*, 12–26.
Bateson, G. (2000). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. Chicago: University of Chicago Press.
Béchard, J.-P., & Grégoire, D. (2005). Entrepreneurship education research revisited: The case of higher education. *Academy of Management Learning and Education (AOMLE), 4*(1), 22–43.
Behrent, M. (2014). Instruire ou réveiller? Un débat transatlantique. *Sciences Humaines* 32–33.
Bellier, S. (2000). *Compétences en action: Expérimentations, implications, réflexions, pratiques*. Paris: Éditions Liaisons.
Bertrand, Y. (1995). *Contemporary theories and practice in education*. Madison: Magna Publication.
Blenker, P., Korsgaard, S., Neergaard, H., & Thrane, C. (2011). The questions we care about: Paradigms and progression in entrepreneurship education. *Industry and Higher Education, 25*(6), 417–427.
Byrne, J., Fayolle, A., & Toutain, O. (2014). Entrepreneurship education: What we know and what we need to know. In E. Chell & M. Karataş-Özkan (Eds.), *Handbook of research on small business and entrepreneurship* (pp. 261–288). Cheltenham: Edward Elgar Publishing.
Carré, P. (2010). L'autodirection des apprentissages. In P. Carré, A. Moisan, & D. Poisson (Eds.), *L'autoformation, Perspectives de Recherche* (pp. 117–169). Paris: Presses Universitaires de France.
Claparède, E., & Avanzini, G. (2003). *L'éducation fonctionnelle*. Paris: Fabert.
Clark, B. R. (2001). The entrepreneurial university: New foundations for collegiality, autonomy, and achievement. Higher Education Management. In OECD (Eds.), *Higher education management* (pp. 9–24). Paris: OECD.
Cosnefroy, L. (2011). L'apprentissage autorégulé: Perspectives en formation d'adultes. *Savoirs, 23*(2), 9–50.
Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268.
Dewey, J. (2012). *Democracy and education*. Paris: Armand Colin Editeur.
Durand, T. (2006). L'alchimie de la compétence. *Revue Française de Gestion, 160*(1), 261–292.
European Commission. (2003). *Green paper: Entrepreneurship in Europe*.
European Commission. (2008a). *Survey on entrepreneurship in higher education in Europe*.
European Commission. (2008b). *Entrepreneurship in higher education, especially within non business studies. Final report of the expert group*.
European Commission. (2009). *Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training* ("ET 2020").
European Commission. (2010). *Europe 2020: A European strategy for smart, sustainable and inclusive growth*.
European Commission. (2012). *Rethinking education: Investing in skills for better socio-economic outcomes*.
European Commission. (2013). *Entrepreneurship education: A guide for educators*. Brussels
Eurydice (2012). *Entrepreneurship education at school in Europe. National strategies, curricula and learning outcomes. Education, Audiovisual and Culture Executive Agency (EACEA P9 Eurydice and Policy Support)*.
Fayolle, A. (2013). Personal views on the future of entrepreneurship education. *Entrepreneurship and Regional Development, 25*(7–8), 692–701.
Fayolle, A., & Gailly, B. (2008). From craft to science: Teaching models and learning processes in entrepreneurship education. *Journal of European Industrial Training, 32*(7), 569–593.
Freinet, C. (1993). *Education through work a model for child-centered learning*. New York: The Edwin Mellen Press.
Gibb, A. A. (1996). Entrepreneurship and small business management: Can we afford to neglect them in the twenty-first century business school? *British Journal of Management, 7*(4), 309–321.

Gorz, A. (2001). La personne devient une entreprise. *Revue du MAUSS, 2*(18), 61–66.
Guglielmino, L. M. (1977). *Development of the self-directed learning readiness scale*. University of Georgia.
Harrison, R. T., & Leitch, C. M. (2005). Entrepreneurial learning: Researching the interface between learning and the entrepreneurial context. *Entrepreneurship: Theory & Practice, 29*(4), 351–371.
Honig, B. (2004). Entrepreneurship education: Toward a model of contingency-based business planning. *Academy Of Management Learning and Education (AOMLE), 3*(3), 258–273.
Hynes, B., & Richardson, I. (2007). Entrepreneurship education: A mechanism for engaging and exchanging with the small business sector. *Education+ Training, 49*(8/9), 732–744.
Jones, C., & Spicer, A. (2009). *Unmasking the entrepreneur*. Cheltenham: Edward Elgar.
Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship: Theory and Practice, 29*(5), 577–598.
Le Boterf, G. (2013). *Construire les compétences individuelles et collectives: Le modèle: agir avec compétence en situation, les réponses à plus de 100 questions*. Paris: Eyrolles.
Löbler, H. (2006). Learning entrepreneurship from a constructivist perspective. *Technology Analysis & Strategic Management, 18*(1), 19–38.
Long, H. B. (1991). Challenges in the study and practice of self-directed learning. In H. Log and Associates (Eds.), *Emerging perspectives in self-directed learning* (pp. 11–28).
Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education, 1997*(74), 5–12.
Mitchelmore, S., & Rowley, J. (2010). Entrepreneurial competencies: A literature review and development agenda. *International Journal of Entrepreneurial Behaviour & Research, 16*(2), 92–111.
Montessori, M. (2012). *The montessori method*. Brunswick: Transaction Publishers.
Mueller, S., Toutain, O., Gaujard, C., & Bornard, F. (2014). *Exploring the nature of entrepreneurship education eco-systems*. 3EEE conference (Turku – Finland).
Naia, A., Baptista, R., Januario, C., & Trigo, V. (2014). A systematization of the literature on entrepreneurship education, challenges and emerging solutions in the entrepreneurial classroom. *Industry and Higher Education, 28*(2), 79–96.
Neck, H. M., & Greene, P. G. (2011). Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management, 49*(1), 55–70.
Nuttin, J. (1980). *Motivation et perspective d'avenir*. Leuven: Presses Universitaires Louvain.
OECD. (2010). *The OECD innovation strategy: Getting a head start on tomorrow*. Paris: OECD Publication.
OECD., & European Commission. (2014). *Entrepreneurship 360 – Organisation for economic co-operation and development*.
Oiry, E. (2005). Qualification et compétence: deux sœurs jumelles ? *Revue Française de Gestion, 158*(5), 13–34.
Perrenoud, P. (2002). D'une métaphore à l'autre : transférer ou mobiliser ses connaissances ? In Joaquim Dolz et Edmée Ollagnier (Eds.), *L'énigme de la compétence en éducation* (pp. 45–60). Bruxelles: De Boeck Supérieur.
Piaget, J. (1975). *L'Équilibration des structures cognitives: Problème central du développement*. Paris: Presses universitaires de France.
Raucent, B., Verzat, C., Villeneuve, L., Collectif, & Borght, C. V. (2003). *Accompagner des étudiants : Quels rôles pour l'enseignant ? Quels dispositifs ? Quelles mises en œuvre ?* Bruxelles: De Boeck.
Reeve, J., Ryan, R., Deci, E., & Jang, H. (2008). Understanding and promoting autonomous self-regulation : A self-determination theory perspective. In D. Schunk & B. Zimmerman (Eds.), *Motivation and self-regulated learning* (pp. 223–244). New York: Lawrence Erlbaum Associates.
Rey, B. (1996). *Les compétences transversales en question*. Paris: ESF.
Ricoeur, P. (1995). *Oneself as another*. Chicago: University of Chicago Press.

Rizza, C., & Varum, C. A. (2011). *Directions in entrepreneurship education in Europe*.
Rogers, C. (1969). *Freedom to learn: A view of what education might become*. Columbus: Merrill.
Ruskovaara, E. (2014). *Entrepreneurship education in basic and upper secondary education – Measurement and empirical evidence*. Lappeenranta University of Technology.
Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review, 26*(2), 243–263.
Sarasvathy, S. D. (2008). *Effectuation: Elements of entrepreneurial expertise*. Cheltenham: Edward Elgar Publishing.
Sarasvathy, S. D., & Venkataraman, S. (2011). Entrepreneurship as method: Open questions for an entrepreneurial future. *Entrepreneurship: Theory and Practice, 35*(1), 113–135.
Schwartz, B. (1989). Une nouvelle chance pour l'éducation permanente. Education.
Steiner, R., & Bamford, C. (1996). *The education of the child: And early lectures on education* (Vol. 25). Hudson: SteinerBooks.
Stroobants, M. (2002). La qualification ou comment s'en débarrasser. In Joaquim Dolz et Edmée Ollagnier (Eds.), *L'énigme de la compétence en éducation* (pp. 61–73). Bruxelles: De Boeck Supérieur.
Surlemont, B., Fayolle, A., & Filion, L. J. (2009). *Pédagogie et esprit d'entreprendre*. Bruxelles: De Boeck.
Taleb, N. N. (2013). *Antifragile: Things that gain from disorder*. New York: Random House.
The Society for Effectual Action (SEA). (2012). *Effectuation in action*. www.effectuation.org
Toutain, O. (2007). *L'ingénierie Combinatoire des Ressources : une modélisation des compétences entrepreneuriales pour contribuer à l'amélioration des pratiques d'accompagnement*. V^{ème} Congrès de l'Académie de l'Entrepreneuriat. Sherbrooke (Québec), 4/5 octobre 2007.
Toutain, O. (2008). Compétences entrepreneuriales et pratiques d'accompagnement. In G. Kisaba (Ed.), *Entrepreneuriat et accompagnement* (pp. 31–69). Paris: L'Harmattan.
Toutain, O. (2010). *Apprentissage expérientiel et métacognition dans l'apprentissage de l'entrepreneuriat*. Thèse de Doctorat. Université Lyon 3.
Toutain, O., Mueller, S., Gaujard, C., & Bornard, F. (2014a). Dans quel Ecosystème Educatif Entrepreneurial vous retrouvez-vous? *Entreprendre & Innover, 23*(4), 31–44.
Toutain, O., Fayolle, A., & Kyrö, P. (2014b). Enterprising education in the process of social transformation: Challenges and perspectives. In B. T. Knudsen, D. R. Christensen, & P. Blenker (Eds.), *Enterprising initiatives in the experience economy: Transforming social worlds* (Vol. 5). New York: Routledge.
Tuunainen, J. (2005). Contesting a hybrid firm at a traditional university. *Social Studies of Science, 35*(2), 173–210.
Vygotsky, L. S. (2012). *Thought and language*. Eastford: Martino Fine Books.
Zarifian, P. (2004). *Le modèle de la compétence*. Paris: Éditions Liaisons.