



## **Entrepreneurial teacher training in Europe: an overview of European policies and developments**

## **A formação de professores em empreendedorismo na Europa: uma perspetiva das políticas europeias e desenvolvimentos**

Dana T. Redford,

*Portuguese Catholic University, Portugal*

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**Entrepreneurial teacher training in Europe: an overview of European policies and developments**

**A Formação de Professores em Empreendedorismo na Europa: uma perspetiva das políticas europeias e desenvolvimentos**

Dana T. Redford, Portuguese Catholic University, Portugal  
[Dana.redford@peep.pt](mailto:Dana.redford@peep.pt)

**Abstract**

In regard to the current context of Entrepreneurship Education in Europe, the majority of countries are in a process of educational reform. Among their objectives is to strengthen entrepreneurship education in a perspective of lifelong learning across all educational levels. The challenges presented in teaching entrepreneurship require significant changes in the way teachers themselves are educated. This chapter starts with the baseline goal of improving entrepreneurship education and training as set out by the European Commission. It highlights the challenges that are faced in fostering an entrepreneurial attitude in educational institutions and, in particular the need to support teachers through training programs that pursue a long-term policy commitment that is both creative and well-conceived. Entrepreneurship education is still an up-and-coming subject in teacher education. Nevertheless, experience and good practice indicate that when this type of training is offered the concept and the innovative methods associated with entrepreneurship are quickly adapted to the educational necessities of students.

**Resumo**

No que diz respeito ao atual contexto da Educação em Empreendedorismo na Europa, a maior parte dos países estão num processo de reformas educativas. Entre os seus objetivos, encontra-se o de fortalecer a educação em empreendedorismo, numa perspetiva de aprendizagem contínua em todos os níveis de ensino. Os desafios no ensino de empreendedorismo exigem mudanças significativas na forma como os próprios professores são formados. Este capítulo começa por abordar o objetivo primordial de melhorar a educação e a formação em empreendedorismo conforme estabelecido pela Comissão Europeia. São assim realçados os desafios que se prendem com a persecução de uma atitude empreendedora nas instituições de ensino e em particular a necessidade de apoiar os professores em programas de formação que tenham em conta um compromisso político prolongado e que sejam criativos e bem concebidos. A educação em empreendedorismo é ainda uma matéria promissora no ensino. Ainda assim, a experiência e as boas práticas mostram que, quando se leva a cabo este tipo de formação, o conceito e os métodos mais inovadores associados ao empreendedorismo são facilmente adaptados às necessidades educativas dos alunos.

**Keywords**

Entrepreneurial Teacher Training; European Policies; Public Policy in Entrepreneurship Education; Secondary Schools; VET

**Palavras – chave**

Formação de Professores Empresarial; Políticas europeias; Políticas Públicas em Educação Empreendedorismo; Escolas secundárias; VET

## 1. Introduction

The definition of Entrepreneurship is not consensual amongst scholars, taking into consideration the available literature on this subject. The European Commission's report, *"Mapping of Teachers' Preparation for Entrepreneurship Education"* (2011), proposes the following conclusions:

*"There currently exists a variety of approaches to defining/analyzing entrepreneurship. Entrepreneurship has featured as a research topic not only in economic theory, but also (and increasingly) in other areas, such as sociology, psychology and management studies. Entrepreneurship is a human phenomenon linked to a wide spectrum of skills, knowledge and behavioral/emotional attitudes. This may suggest that there is no "simple way" of conceptualizing the "entrepreneur" and what makes an individual "entrepreneurial"; skills, knowledge and behavioral/emotional attitudes linked to entrepreneurship can be fostered and nurtured through learning processes as well as through other processes. Attitudes such as being visionary, passionate or imaginative are also dependent upon other contextual factors, which are often linked to an individual's personal history (e.g. family, early childhood experience, peers, local community)." (European Commission, 2011, p.10).*

One important aspect covered by the literature is in the assumption that entrepreneurship is a key factor for fostering economic growth through innovation. Entrepreneurship education is seen as a means to developing a culture that is for and about entrepreneurship. Such competencies are best acquired through people-led enquiry and discovery that result in the enabling of students to turn ideas into action. They are difficult to teach through traditional teaching practices in which the learner tends to be a passive recipient. They require active, learner-centered pedagogies and learning activities that use practical learning opportunities from the real world. Furthermore, since entrepreneurship education is about cross-curricular competences, it is best if it is made available to all students and embedded in existing courses rather than treating it as a separate subject. This is especially true at the primary and secondary school levels (European Commission, 2010).

As highlighted by the European Commission (2006), education and training should support the development of an entrepreneurial mindset and behavior amongst EU citizens and hence advance entrepreneurship. Entrepreneurship education aims to develop entrepreneurship related competences and qualities needed to become an enterprising person. More recent studies define entrepreneurship education as a process through which learners acquire a broad set of competencies. In this sense, entrepreneurship refers to an individual's ability to turn ideas into action. It includes creativity, innovation, initiative and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives (European Commission, 2011).

According to the European Commission (2011), this broad set of competences can be structured in three main categories:

- Specific knowledge (e.g. knowledge of the workings of the economy);
- Skills (e.g. planning, organization, analysis, communication, negotiation, working individually and in teams, risk assessment, capacity to identify opportunities for personal and professional/business activities);
- Attitudes (e.g. sense of initiative, pro-activity, independence, motivation and a determination to meet objectives).

Knowledge, skills and attitudes can be nurtured in the context of education and training. The Eurydice Unit of the Education, Audio-visual and Culture Executive Agency (EACEA) has coordinated a comparative overview of entrepreneurship education data within the Eurydice Network (consisting of 31 European countries). The following graph displays an updated comparison of how the above mentioned 3 categories of competences are being required as learning outcomes, within these European countries (in ISCED 1-3).

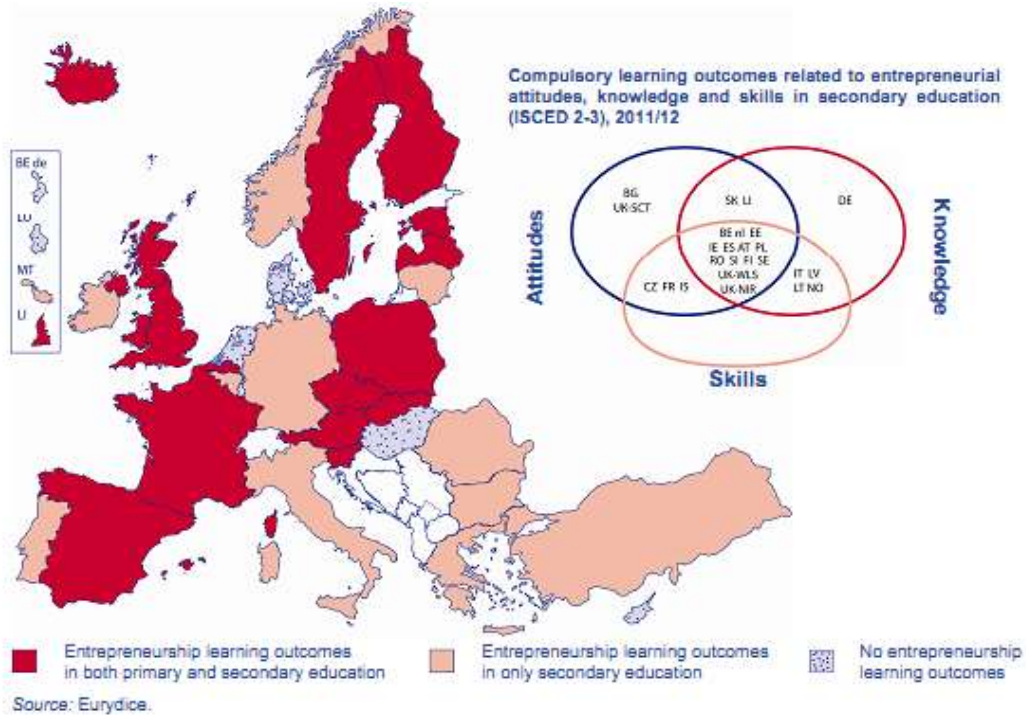
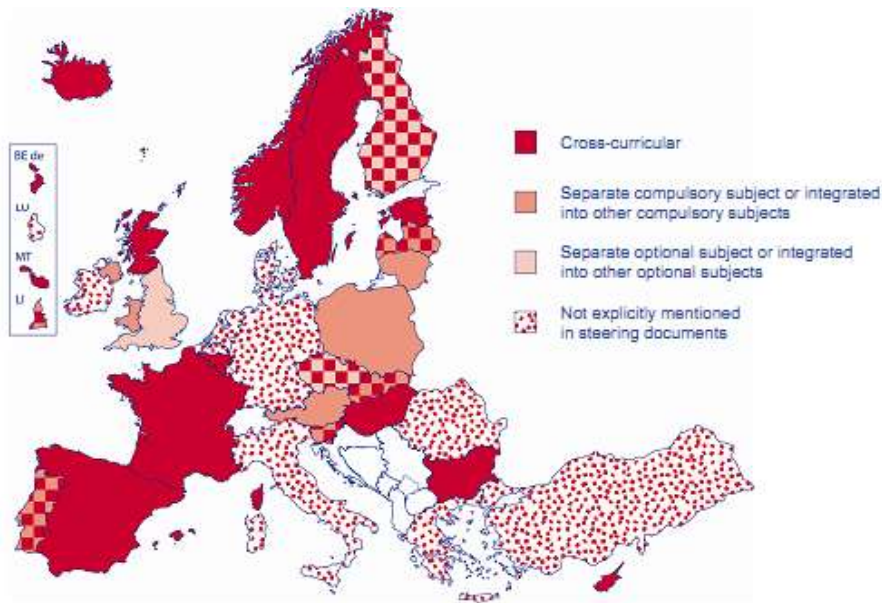


Figure 1: European Countries Comparison regarding Expected Learning Outcomes in Entrepreneurship Education (ISCED 1-3). EACEA, 2012, p.20

A report coordinated by the Commission under the Best Procedure Project, “*Education and Training for Entrepreneurship*” (European Commission, 2005) concluded that although numerous entrepreneurship related activities are currently being developed at all levels of education, many are neither integrated into the curriculum nor part of a coherent framework, and that as a result of this, most students do not yet have the possibility of taking part in entrepreneurship courses and programs.

Entrepreneurship education can be integrated into general education in different ways: Through a cross-curricular approach, through existing subjects or by introducing it as a separate curricular subject. When it is integrated into existing subjects, it is often made optional. Although in some cases, it is compulsory. Many different combinations of approaches appear within European countries. Most European countries explicitly recognize entrepreneurship education at least to some degree in primary and secondary education. However, the overall pattern of provisional changes significantly varies from one school level to another (EACEA, 2012). The following graphs offer a comparative overview of the most recent data on mainstream curricula integration options used in European countries according to the specific ISCED level.

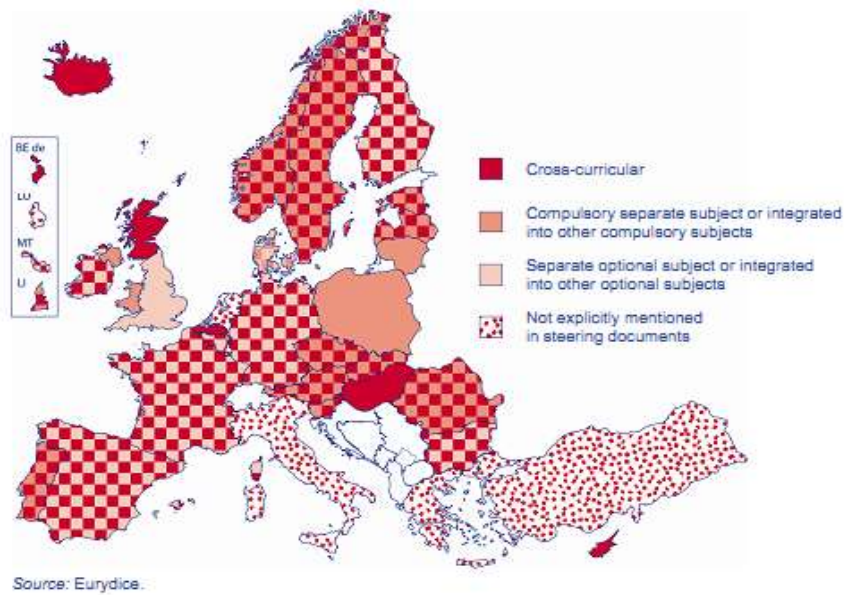


Source: Eurydice.

Figure 2: European Countries Comparison regarding the Approaches to Entrepreneurship Education (ISCED 1). EACEA, 2012, p. 14

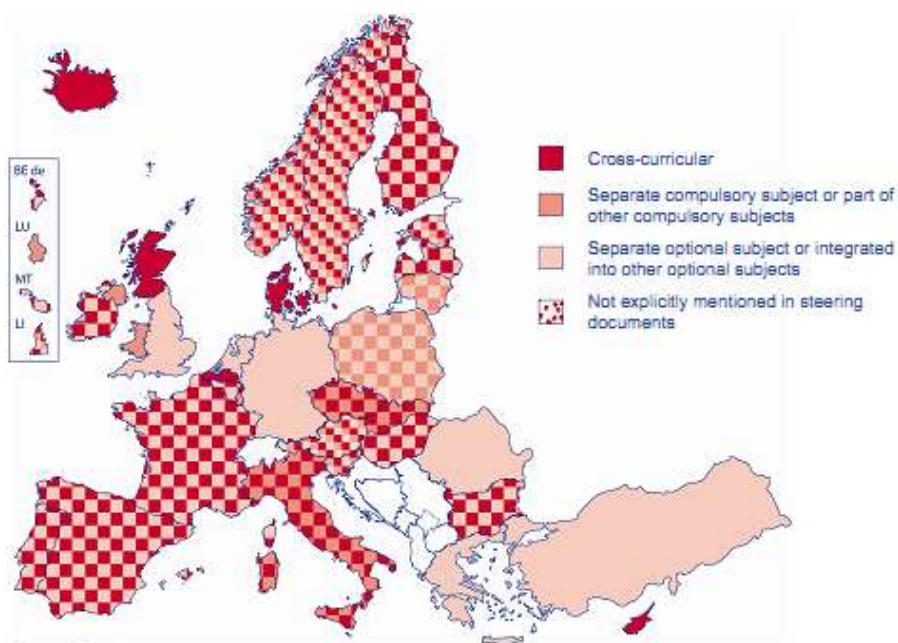
**Good practice example: mini-company project in primary schools in Spain**

The courses' robust and coherent methodology provides a set of tools to develop a sense of initiative and entrepreneurship key competences in a primary school setting. The course is accredited by CPRs (Teacher Training Centres, Department of Education). Its main objectives are raising awareness about entrepreneurship education among primary school teachers, helping teachers adopt more entrepreneurial learning styles and providing practice-based methodologies to develop entrepreneurship in primary schools. Its key strength is that it is online, which allows for greater flexibility, adaptation and personalization of course content. The program is on a voluntary basis of participation and it is followed-up by tutors, from the Valnalon community development organization, which enhances the level of commitment.



Source: Eurydice.

Figure 3: European Countries Comparison regarding the Approaches to Entrepreneurship Education (ISCED 2). EACEA, 2012, p. 15



Source: Eurydice.

Figure 4: European Countries Comparison regarding the Approaches to Entrepreneurship Education (ISCED 3). EACEA, 2012, p.16

As shown at the primary level, half of European countries define specific learning outcomes for entrepreneurship education. These are generally linked to compulsory subjects, whereas in secondary education, more countries specify learning outcomes for lower or upper secondary levels or, in some cases, both. In this sense, entrepreneurship education in secondary education is more often integrated into optional subjects. Therefore, not all students will choose to take entrepreneurship to achieve the desired learning outcomes.

## 2. Innovative learning environments

Referring to the skills of the 21st century teacher, the OECD report *“Preparing teachers and developing school leaders for the 21st century – lessons from around the world”* (Schleicher, 2012), states that there is no single best way of teaching and that it is even more true in the 21st century than in the past. The report concludes that teachers need a rich repertoire of teaching strategies, the ability to combine approaches, and the knowledge of how and when to use certain methods and strategies. Such strategies should include: direct, whole-group teaching, guided discovery, group work, and the facilitation of self-study and individual discovery. They should also include personalized feedback. Importantly, teachers need to have a deep understanding of how learning happens and of how individual student motivations, emotions and lives outside the classroom affect the learning process. Teachers need to be able to work in highly collaborative ways, working with other teachers, professionals and *“paraprofessionals”* (e.g. class assistants, teacher’s aides, etc.), within the same organization, or individuals in other organizations, networks of professional communities and with different partnership arrangements, which may include mentorship.

Innovative learning environments are characterized by a good balance between discovery and personal exploration on the one hand, and systematic instruction and guidance on the other while respecting individual differences in a student’s abilities, needs and motivations. It also indicates that the balance between external regulation by the teacher and self-regulation by the student will vary during this type of educational experience (i.e. as student competences increase, their portion of autonomy can also increase resulting in explicit instructional support diminishing).

Teachers tend to use several pedagogic methods in Finland, a country where entrepreneurship education is part of the curriculum (Seikkula-Leino et al., 2007, 2009, 2011). In their study, the Finnish researchers show that surveyed teachers primarily use the following methods:

- Discussions in the classroom: talking about entrepreneurship seems to be the easiest way for teachers to promote entrepreneurship education. Almost all teachers surveyed reported having used this method;
- Facilitating student projects in school: approximately two-thirds of the teachers surveyed have taken part in these projects. However, this method is used less frequently due to the extra resources needed to implement projects;
- Study tours or company visits: used at one time or another by approximately half of the teachers surveyed, however on a less frequent basis;
- Working in pairs, group work, cooperative methods, “*learning by doing*”: using real world simulation and creative problem solving techniques. These are also very popular and regularly used by teachers. (Seikkula-Leino et al., 2009; as cited in European Commission, 2011, p. 17)

Although Finnish teachers use several of these working methods, it is interesting to note that the most frequently used in the classroom remain relatively traditional.

These findings confirm those of Hytti and O’Gorman (2004) who have analyzed 50 entrepreneurship education programs at all levels of education in Austria, Ireland and the UK. These researchers found that the working methods used (in decreasing frequency of occurrence) are as follows: “*traditional*” teaching methods, business simulations, workshops, counseling/mentoring, setting up a business, study visits, games and competitions and practical training.

These results hold not only for the pedagogy of entrepreneurship education, but also for the general educational pedagogy used in schools. When looking at teaching pedagogy across the EU, irrespective of the course taught, it appears that teachers tend to rely on traditional teaching methods, despite agreeing on the importance of creativity in the classroom (European Commission, 2011).

The TALIS Study (OECD, 2010) reached similar conclusions by assessing teacher practices in 23 participating countries (in and outside of Europe). Results point towards a tendency to put greater emphasis on ensuring that learning is well structured. Student-oriented activities and enhanced learning activities such as project work are less frequently applied.

This fact challenges schools to become more open to their local communities. In equal measure, businesses and the wider community in general, should be willing to play an active and committed role in supporting teachers and schools in their endeavors. Changes to teacher education methodologies cannot take place in a vacuum if they are to be effective.

Four key areas of action to promote entrepreneurship teacher training were identified in EKORYS report (2011):

- Initial education of teachers;
- At national or regional level, the development of the requisite vision and supporting frameworks across the education systems as a whole;
- Teachers' continuing professional development;
- At local school level, the development of appropriate support structures and activities.

The OECD report on preparing teachers (Schleicher, 2012) states that school-based professional development activities involving the entire staff or significant groups of teachers are becoming more common, while teacher initiated personal development is becoming less so, at least in terms of programs supported through public funds. Most countries now link professional development to the developmental priorities of the school and coordinate in-service training in the

school accordingly. School leaders and, in some cases, local school authorities, play an important role in planning professional-development activities. Supporting collaborative work cultures is an increasingly important and recognized responsibility of school leaders.

Currently, entrepreneurship training is most commonly available for teachers as a part of their continuing professional development, with no instances of it being cited where it is an integral part. The dominant modes of incorporation of entrepreneurship education are through external actors and as part of specific programs organized by ministries of education (EKORYS, 2011).

The recommendations related to initial teacher education emphasize the need to develop the skills and attitudes that entrepreneurship requires, such as teamwork, sense of initiative, decision-making, problem solving, leadership, risk-taking and creativity.

#### **Good practice example: WEEN Consortia of University Educators, Wales, UK**

The WEEN Consortia of University Educators in Wales, developed an Entrepreneurial Educators Post Graduate Certification in Education. This module (Teachers Award) encourages and develops entrepreneurial skills, self-motivation and analytical abilities through the study and application of entrepreneurship in a teachers own subject area. The module is delivered to groups of teachers comprised of individuals operating within diverse sections of the Lifelong Learning sector, such as higher education, further education, school education, work-based learning and private training organisations. The module will be contextualised through assessment where learners apply the concepts learned in their specific teaching/training subject, environment and experience. The module has been mapped against the Lifelong Learning UK (LLUK) overarching professional standards for teachers, tutors and trainers in the lifelong learning sector and the Higher Education Academy (HEA) Professional Standards Framework for teaching and supporting learning.

Initially, teacher education institutions will need to start by examining existing curricula and determining the extent to which entrepreneurship education underpins and is embedded within it, and what more needs to be done to accomplish this. At the same time, entrepreneurial skills and attitudes will require new pedagogies that in essence consist of the same ones that student teachers will be expected to teach once they professionally qualify, i.e. experiential learning (project-based activities, active learning, learning that is “*co-constructed*” with those beyond the school, or college, etc.) and participatory teaching. Teacher education institutions should thus provide rich context for learning about, through and for entrepreneurship. They should enable student teachers to explore and develop a range of pedagogical techniques which are underpinned by active learning approaches, a willingness to experiment, “*to try new things*”, and to draw upon a wide range of learning contexts both within, but particularly outside the institution.

#### **Good practice example: Resource Center for Mathematics, Science and Technology Education in Norway**

The Resource Center for Mathematics, Science and Technology Education at the Norwegian University of Science and Technology has been involved in innovations for entrepreneurial practice in schools since 1999. In 2004 the school authorities of Trondheim Municipality and the Resource Centre at the University agreed to develop a training programme (7,5 ECTE-credits) in Technology & Entrepreneurship (T&E) for teachers in all subjects in primary and lower secondary schools. The course was given twice and involved a total of approximately 40 teachers. Ten of those teachers took a follow-up course in Technology and Entrepreneurship (7,5 ECTE-credits) in 2007-2008. Until then, teacher training in entrepreneurship had been centered mostly around gründer ideas and development of mini-companies and pupil enterprises. During the next phase the concept of entrepreneurship education was further developed, resulting in a broader understanding and one more focused on the development of entrepreneurial skills that may be used in a wide variety of situations. Also, included in the broader understanding of the concept is entrepreneurship as a pedagogical approach and a working method in schools. A request from the education authorities in Sør-Trøndelag County resulted in a teacher course in Entrepreneurship and Innovation (15 ECTE-credits) for teachers in upper-secondary schools in 2010-2011. The course was followed by 20 teachers. Not only was the content of the course focused on entrepreneurship, the working methods used in the course were, to a large degree, entrepreneurial.



Student teachers should be encouraged to learn with student teachers from other subject areas about other subjects and differing approaches across disciplines so that they are open to other perspectives. Such approaches can foster team building, communication and negotiation skills, project management and reflective learning. These are the skills essential for entrepreneurship education.

The OECD Report (Schleicher, 2012) also presents a comparative review of school leadership that identifies a focus on supporting, evaluating and developing teacher quality as the core of effective leadership. This includes co-coordinating the curriculum and teaching programs, monitoring and evaluating teaching practices, promoting teacher professional development, and supporting collaborative work cultures.

#### **Good practice example: training program for trainers in Flanders, Belgium**

In Flanders, “*Professionalisering van Leraren en Docenten op het vlak van Ondernemerschap*” Professionalisation of Teachers and Lecturers as part of Entrepreneurship” is a training program for trainers focused on the development of entrepreneurial competences and attitudes (real-life experiences in entrepreneurship). It allows the professionalization of teachers and lecturers in the field of entrepreneurship and entrepreneurial spirit, focusing on entrepreneurial skills, networking between schools and companies and a balanced image of female and immigrant entrepreneurship (new since 2011). The main actions of the program are: 1) Organising exploratory and short classic in-company work experiences in cooperation with companies; 2) Allowing teachers/lecturers/members of school management teams to participate in internal in-service training in companies; 3) Organising in-service training actions (workshops/information sessions/information marketing) regarding specific aspects of entrepreneurship. An additional focus will be placed on female and immigrant entrepreneurship in work placements as well as in-service training.

Educational institutions that give initial teacher training should also encourage student teachers to take responsibility for their own learning and reflect upon their learning experiences in order to articulate them through seminars, workshops and learning logs. They should be encouraged to integrate this knowledge into their own planning of entrepreneurship activities for their future pupils.

The Partnership for 21st Century Skills has called for focusing in six areas of teacher training:

- The traditional core academic subjects;
- Twenty-first-century content, including global, financial, and environmental awareness;
- Learning and thinking skills, including creativity/critical thinking, problem solving, communication and collaboration;
- Information and communication technology skills;
- Life and career skills, including time management, group work, and leadership;
- Twenty-first-century assessment skills that accurately measure the other five skills.

### **3. Assessment**

It is especially important that the way in which teachers and students are assessed come in line with the goals of entrepreneurship education. Systems need to recognize and reward teachers for becoming entrepreneurial themselves and for using active and experiential learning methods (ECORYS, 2011).

For the teacher, assessment has a powerful impact on what is taught and how it is taught. ECORYS report (2011) shows that while key competences such as mother tongue, foreign language and math, science and technology are commonly assessed in national exams, transversal key competences like sense of initiative, entrepreneurship and learning to learn are not assessed in these sorts of national tests. Therefore, there are limited incentives for teachers to engage in entrepreneurship education and to apply the teaching methods associated with entrepreneurship. Work by the European Commission has demonstrated that although a

transversal competence like entrepreneurship is complex to assess, Member States are already developing practices in how to assess aspects of it such as creativity and problem solving. Capturing attitudinal development is possible through systematic and intentional use of formative assessment and broader summative assessment. To enable assessment to take place, EU Member States are already developing learning outcomes for entrepreneurship, which need to be coupled with the definition of stages and levels.

*“Along with the development of assessment procedures, national education systems should ensure that they incentivise teachers to become learning facilitators. All systems, by their nature, provide both formal (intended) and informal (perhaps unintended) incentives for people involved in them to act in certain ways. For teachers the way they teach is a consequence of a variety of formal factors including: their professional education; the pay they receive; the systems that assess their performance and determine their promotion prospects. But other less formal elements can also be significant including the extent of autonomy teachers experience and the opportunities for networking with colleagues, including at European and international levels. All such elements, and others besides, should point in the same direction, and specific incentives should be developed such as awards for good entrepreneurial teaching practice, and further training opportunities. Special regard should be paid to ensuring that “perverse incentives” which discourage teachers from becoming facilitators despite the overall policy intention area addressed.” (European Commission, 2011).*

#### 4. Resources

Reports emphasize the need to ensure that appropriate and high quality resources and tools are made available for teachers. Pedagogies and didactic tools should be based on good quality research. Given the relative newness of the lifelong entrepreneurship education drive there is a clear need for more systematic and longitudinal research to support policy makers and the teaching profession in determining “*directions and corrections*” to the entrepreneurship education drive.

Research studies are thus needed to underpin action. Additionally, over time resource centers could develop into National Centers of Excellence in Entrepreneurship Education with a role in accrediting the quality of teaching and learning materials. There should be one for each country. Schools should be able to identify the resources they need. Designating a teacher as the school entrepreneurship coordinator can be important for strategy implementation.

#### **Good practice example: after-school Gardening Club in England, UK**

Created by teacher Simon Pugh-Jones, the “*Writhlington School Orchid Project*” grew out of an after-school Gardening Club (still a central part of the Project) that has involved hundreds of students over the more than twenty years it has been running. The responsible teacher has successfully worked various aspects of the Orchid Project’s horticultural work into the school curriculum (science) for every student at the school. He has also integrated the Project into the subjects of enterprise and technology. Because a single orchid seedpod can contain up to several million seeds, the generative potential of each orchid flower cared for by the students is enormous. The students wholesale their in vitro plants and kits through botanic gardens and the Eden Project, and sell them alongside adult ‘ex vitro’ plants directly to the public at shows, such as the Royal Horticultural Society’s London Orchid Show held in March, at which time they talk about their work and plants with enthusiasm and knowledge.

The preparation for sale requires folding boxes and gluing on information labels to ready to sell in vitro plantlets in a ‘mini orchid kit’ the students developed and designed themselves through a young enterprise company some years ago. Sales of plants generate sufficient funds to run the Project, and its (near) annual fieldtrips taking small groups of students to visit orchid hotspots and to see orchid conservation in action around the world.

There are also enormous opportunities to use skills and expertise within local communities. This is especially important with regard to businesses and entrepreneurs. Firms often do not know

either how to participate or in which activities they could participate. Sometimes they need incentives to take part in entrepreneurship education. They need to be sold on the benefits of internships and placements, and for entrepreneurship education to be linked to their products and services. Here municipalities as well as individual schools can play a role. They can be especially helpful given the variation between schools and the scale and breadth of the local community. They can especially help schools in areas with a smaller entrepreneurial base and therefore a reduced access to businesses.

**Good practice example: collaborative projects between municipalities and schools in Iceland**

Iceland has developed a collaborative project between the municipality of Fljótshálsa and schools on all levels in the county. The main aim was strengthening human capital in a society of creative, entrepreneurial and responsible individuals in the municipality. In recent years, the core activity has been a year-long course for teachers and collaborators entitled, *“Environmental Literacy and Local Pride – Innovation Education as a tool for Entrepreneurship and Understanding.”*

Intermediaries like chambers of commerce can also facilitate interaction between businesses and schools. This helps to establish a common language between commercial entrepreneurs and schools. There are instances across Europe where local business communities/chambers of commerce have instigated community involvement awards for local schools with an annual award ceremony similar to the “Oscars”. These events also recognize and reward the efforts required to develop and sustain potential employment links.

Opportunities are available everywhere and schools should make use of all channels, including parent connections. Another source of support are the students themselves. Many current students have work experience that can provide teachers with a useful resource. Past students can be utilized systematically through alumni networks. They can be used as role models and ambassadors to share their personal successes and failures. Initially, a school’s engagement with its community may be opportunistic and ad hoc. Over time however, the goal should be to establish regular structured and sustainable collaboration, moving from individual teacher-entrepreneur links to corporate school-business networks and partnerships.

As well as developing effective strategies for community collaboration, it is also important to ensure that opportunities are made available for schools to cooperate with one another. Partnerships, networking and good practice exchanges should be supported at local levels. Such measures can help schools to develop mutual support mechanisms. These measures can help those that participate to learn from one another's experiences, and perhaps to pool resources and share connections with local communities and entrepreneurs. Opportunities for networking should also be developed at the European level. Indeed, alongside opportunities for schools and teachers to share experiences, opportunities for mobility should be developed for teachers. They should provide opportunities for both face-to-face and virtual interactions, aimed at fostering the development of self-sustaining communities of interest. In this context, the European Commission should consider the introduction of a European transnational mobility scheme expanding on the current system.

## 5. The role of higher education

Higher education institutions play an important role in improving entrepreneurship. The labour market has had to face many changes in recent years. Unemployment rates have grown in Europe and the possibility of setting up a business emerges as an important way to add value to a country’s economy and to the creation of jobs. In this environment, schools must provide an entrepreneurship ecosystem, develop and adapt competencies and skills, disseminate knowledge, technology and increase economic development (Costa et al., 2012).

At higher education levels, the primary purpose of entrepreneurship education should be to develop entrepreneurial capacities and mindsets (European Commission, 2008). Yet as the demand for entrepreneurship education is increasing at the university level, there is a shortage of human resources and funding for this type of education making it harder to meet expectations.

When looking at teacher preparation, it is apparent that most teachers have little or no practical experience in being entrepreneurs. Getting experienced entrepreneurs involved in teaching can thus make up for the current lack of practical knowledge among professors (European Commission, 2008). Unfortunately, there are few examples in Europe of entrepreneurs being involved in curriculum development. Most frequently, they come to universities as guest lecturers with the objective of presenting their experience to students as personal testimonials. This panorama seems to indicate that higher education institutions need to engage more vigorously with the enterprise and vice-versa.

In the European reports that have recently analyzed the current state of affairs, there is sufficient data that proves that there are currently too few professors trained in entrepreneurship. There is a need to graduate more PhD students in entrepreneurship, to increase the number of future teachers. Other relevant questions raised by the literature is the lack of effective incentives to involve, motivate and reward teachers in their effort to train a new generation of more entrepreneurial students.

Higher education institutions have the autonomy to pursue innovation, by making constant contact with the diversity and richness of other educational institutions and international experts. This alone makes them potential recipients of good practices and provides them with good opportunities to improve their entrepreneurship education methods. Nonetheless, the one caveat is at the structure level. It can be observed that institutions that provide university level studies usually operate in a rather rigid curriculum format. This constraint makes it difficult to implement a cross-disciplinary program such as recommended by the EU. The organization of siloed academic departments makes it hard to establish cooperation between different areas of knowledge, as they are likely to be established separately and have different hierarchies.

Lectures are still the most common teaching tool. This also poses an obstacle to developing entrepreneurial thinking in both teachers and students, as experience-based pedagogies are crucial in this type of education. But there are exceptions.

#### **Good practice example: development of interactive courses in England, UK**

At the University of Cambridge (UK), over a 6-year period, a panel of some 200 entrepreneurs and other practitioners was developed to help deliver interactive courses. Ideally, entrepreneurs should receive some training on how to address students. One suggestion was to identify and train an "Academy" of high profile entrepreneurs who are prepared to give of their time and can be relied upon in the classroom. This has been done in Wales. Also, it should be taken into account that entrepreneurs are more motivated to come back to their previous school/university. These alumni can have the added effect of having students identify with the presenters case and experience.

The European Commission underlines the need to adapt entrepreneurial programs and modules that offer students the tools to think creatively, be effective problem solvers, analyze business ideas objectively, and communicate, network, lead, and evaluate any given project. (European Commission, 2008).

Currently the teaching of entrepreneurship is not yet sufficiently integrated in higher education institutions' curricula. Available data indicates that the majority of entrepreneurship courses are offered in business and economic studies (European Commission, 2008). Nonetheless, innovative and viable business ideas are more likely to arise from technical, scientific and creative studies. So the real challenge is to build inter-disciplinary approaches, making entrepreneurship education accessible to all students, creating teams for the development and exploitation of

business ideas, mixing students from economic and business studies with students from other faculties and with different backgrounds.

To be able to test business ideas in an educational, supportive environment is the keystone in fostering innovation and entrepreneurship in today's society. Academic spin-offs are increasingly seen as important means of enhancing local economic development. However, in their new roles, scientists and universities must build business and managerial competencies. More generally, students in all fields, including humanities, arts and other creative studies, may greatly benefit from learning and gaining experience in entrepreneurship. The benefits of entrepreneurship education are not limited to boosting start-ups, innovative ventures and new jobs. Entrepreneurship is a competency for all, helping young people to be more creative and self-confident in whatever they undertake.

In establishing an effective cooperation between higher education institutions and enterprises, it is recommended that a win-win situation should arise from the experience. Students and teachers contribute to enterprises with their theoretical knowledge and availability to test new ideas. Enterprises have practical knowledge, which is often non-existent in the pure academic experience. In order for higher educational institutions to benefit from the collaboration, it should be long-term oriented, e.g. involving entrepreneurs and businesses leaders as mentors and advisers in building student business hatcheries and incubators, or in developing new entrepreneurship courses and study programs, including internship programs. For enterprises, there should be short-term benefits too, e.g. through involving student groups in innovation activities, particularly helping firms formulate and develop radical innovation ideas, and through linkage to research activities. Taking these basic rules into consideration, close collaboration can be established between SMEs and higher education institutions (European Commission, 2008).

Another action recommended in advancing entrepreneurship in higher education is to increase the mobility of teachers and researchers between institutions and business. Unfortunately, this is not currently encouraged or facilitated by the Academia in the majority of countries. The one exception is France where there are specific programs that have been established for members of scientific staffs. Since 1999, a law has allowed researchers to quit universities and labs to create new ventures based on their work. A network of academic incubators has been set up to support them. They are allowed to go back to university, if desired. Between 2000 and 2005, 844 enterprises have been created in France through academic incubators by researchers who have participated in this program.

In Germany, the Gelsenkirchen University of Applied Science, after a period of at least eight semesters, the University can give professors one semester off for testing and using their scientific expertise and methods as well as to get practical experience in firms. In Spain a new Act for universities was established in 2007, reforming the Statute of University Professors that enabled them to participate in business projects (European Commission, 2008).

Another aspect that deserves attention in creating a more entrepreneurial setting in universities is the support given to innovative spin-offs of knowledge-based businesses launched by students and university graduates. Such students and university graduates would benefit from dedicated advisory and support programs. Entrepreneurship courses and activities should be part of a wider entrepreneurial program within institutions. A high visibility of "*entrepreneurial commitment*" of an institution is achieved through the presence of dedicated spaces, such as "*hatcheries*" or incubators, and through support for student start-up plans.

Members of an Expert Group (European Commission, 2008) were asked if entrepreneurship courses and activities in their respective countries were normally conceived as part of a wider entrepreneurial program. In addition they were asked whether these programs included support mechanisms and services designed to aid student business ideas and new company start-ups, and if they did, whether such mechanisms and services were available for students at all levels. Their answers suggest a rather uneven picture in Europe, with a more or less equal split between "yes" and "no". Where support services exist, they seem to be available in most cases to students of all levels (undergraduate, graduate, post-graduate), while in fewer cases they address mainly

post-graduates and the staff of the institutions. An example of this latter situation is found in Ireland and Portugal.

**Good practice example: taking ideas and Projects and Turning them into Ventures in Spain**

The INNOVA24 program of the Polytechnic University of Catalonia (Spain) is open to all students, faculty, graduates and staff, with the objective of taking innovative ideas and projects generated in the University and turning them into ventures. The program is run by a support center for the creation of technology-based firms, with the involvement of the University and Business Schools of Catalonia. It operates at the various steps of the entrepreneurial process: awareness-raising activities (including creativity workshops), extracurricular training actions, start-up assistance, location in enterprise hatcheries and financing. Since its creation, the INNOVA program has helped in creating 197 technology-based companies.

## 6. Implementation: stakeholder roles

A wide range of support measures is recommended at the national and regional levels to support teacher education for entrepreneurship. In most countries teacher education is still waiting to be fully articulated with those of wider strategies that deal with entrepreneurship education. It is recommended that countries move towards mandating entrepreneurship education within curricula so as to ensure that it becomes part of the mainstream and not marginalized as an extra-curricular activity. Stakeholders from the European level can play a role in helping to develop and share experiences in this area assisting national and local realities.

Educational authorities are recommended to play a role in structuring incentives and removing obstacles enabling teachers to become facilitators. Accomplishing this can involve a broad range of actors including businesses, social enterprises and NGOs.

**Good practice example: The Choices Program for Social Inclusion, Portugal**

*Programa Escolhas* (Choices Program), a governmental program for the social inclusion of youngsters, in Portugal, in partnership with Universidade Católica Portuguesa, Porto, developed a practical learning manual "Entrepreneurship Manual" aimed at entrepreneurship training in socially vulnerable contexts. It includes training material to develop soft skills, entrepreneurial attitudes and professional opportunities. The main goal is to incentivize and empower socially excluded youngsters through an active participation in building their life-projects. The manual is available online on the national program's website ([www.empreende.programaescolhas.pt](http://www.empreende.programaescolhas.pt)) and is divided into two main segments, one designed for trainers (didactic and structured information on entrepreneurship and tools to work this subject with youngsters) and a second one directed to youngsters (with simplified information on entrepreneurship and including practical exercises). The manual has been used in several live-training actions, throughout the country, multiplying its effects within 133 socially vulnerable communities.

The development of communities of entrepreneurial teachers should involve a combination of bottom-up and top-down actions. Clearly the onus is on teachers to come together, however, national and European level actions can support the process.

Further areas for action at this level would include the following:

- National/regional authorities should ensure that funding for entrepreneurship education's continuing professional development is only made available if the training conforms to strict criteria, identified as a quality framework.
- Imaginative programs should be offered with a broad range of opportunities made available, including SME and other community placements/internships for all teaching staffs.
- Regular dissemination events should be organized at the national level to both inform teachers of best practice examples and also to celebrate progress being made towards

establishing excellence in entrepreneurship education as a student entitlement available to all.

## 7. School leadership: the role of management

Opening up schools to the wider world by involving business and local communities to a greater degree can constitute a major challenge to traditional norms and approaches in education. Without the full support of school leaders, achieving entrepreneurship education will be an extremely difficult task. Whilst local communities have a very important role to play, it is head teachers and senior school managers who have to set the overall framework within which local goals can be achieved.

### Good practice example: Small Scale Projects in Schools, The Netherlands

Entrepreneurial education can take on the form of small-scale projects, but can also entail a more team-oriented approach or even a *'total concept'* of the school as an enterprise (business school) with contributions from all departments of the institution. The courses offered by SLO, in The Netherlands, "*grijp de buitenkans: seize the golden opportunities*", are first and foremost aimed at forcing the participants into critical introspection by letting them experience firsthand what being entrepreneurial means. In addition, the courses provide a starting point to offer existing curricula in a fresh way, together with partners. The final aim of the courses is in facilitating the management of the schools involved *"to bring the real world in" and "put the internal expertise out"*. Not just taking, but giving, is where the challenge lies.

School leaders thus are recommended to have a clear vision of what they hope to achieve through entrepreneurship education, a vision that should be shared with their teaching staff. Without this vision, allocating resources in the most appropriate ways is unlikely to be achieved. For these reasons, school leaders should give attention to national and regional strategies with regard to entrepreneurship education. Entrepreneurship education needs to be included as part of a school leaders' own continuing professional development, and should also be identified as separate target groups in national and regional communication strategies. School leaders need to understand the new role that teachers perform as facilitators. In doing so they can identify the best means by which to support their teaching staff both through informal learning opportunities and formal episodes of continuing professional development.

The 2011 Education and Culture D.G.'s report states, as a concluding remark that, *"invisible walls between educational institutions and the outside world have been mentioned"* (Education and Culture D.G., 2011; p.51). Nonetheless, both students and schools can benefit by overcoming those barriers and enhancing cooperation with enterprises and business representatives. Research shows that entrepreneurship education is still a relatively new issue and a quite uncommon topic in initial teacher education. If activities are introduced, it should help to ensure that students receive enough information on what entrepreneurship education means and how they can personally benefit from its associated methods. Experience and good practices indicate that, once it has been established, the concept and the innovative methods associated with entrepreneurship education gain popularity very quickly.

## 8. Conclusions

Considering the literature review on entrepreneurship education, as well as the European practices that were highlighted in this Chapter, the need to support teachers in their training endeavor seems evident. Both experience and theory indicates that, although entrepreneurship education is still an *"up-and-coming"* subject in teacher education, once a support strategy is established, the concept and the innovative methods associated with entrepreneurship education are easily adopted to the educational necessities of their students. To strengthen entrepreneurship education it should be seen as a perspective of lifelong learning, across all educational levels, as well as in initial teacher training.

Researchers and academics in entrepreneurship education also specify the need to draw on many sources to make entrepreneurship education more effective: Research and evaluation (ensuring the quality of entrepreneurship knowledge); Entrepreneurial development of products and services (experimentation and practice); and, active participation of teachers, school heads, students, parents, communities, etc., in order to input new and relevant knowledge into the learning community.

As to the ideal educational level when entrepreneurship education should be implemented, the survey that was analyzed in this article indicates that secondary school is the ideal starting point. However, in the literature review, primary schools are mentioned as the initial target, in order to produce more significant changes that favor entrepreneurship to prosper.

It can be concluded that one of the main focus of entrepreneurship education has to be the development of teacher entrepreneurial skills. In order to develop these skills, entrepreneurship training must allow teachers to experience firsthand what being an entrepreneur means. According to the self-efficacy theory being entrepreneurial is about behavior, but first and foremost it is about beliefs. That is to say, intention and propensity to act are only possible if informed by positive beliefs formulated into the shaping of attitudes, intentions and finally behavior.

Widely recognized good practices, such as mini-companies and business mentorship programs (e.g. Germany's identified good practice, Student mini companies: Common trainings for teachers and students), confirm the value of experimentation in the learning environment. As stated above, student and enterprise involvement in the process of learning, improves the likelihood of future entrepreneurship practices.

Evidence indicates that a good training model in entrepreneurship education increases the competences in social capital and networking (e.g. Portugal's good practice, A Choice for the Future - Entrepreneurship Handbook). Direct participation and mentorship seem to be the most successful training methods to foster entrepreneurial behavior (e.g. Iceland's good practice, Environmental Literacy and Local Awareness and, The Orchid Project in England).

A high-quality training model must enhance both mentorship and autonomy of teachers, as well as assist them with opportunities at the local, regional and European levels, to join networks of colleagues and other stakeholders within the business community. Considering all the dimensions analyzed in this Chapter, there are five recommended areas of content to be included in future entrepreneurship teacher training initiatives:

1. Clarification of overall concepts to help teachers understand and contribute with their own expertise to the definition and advantages of entrepreneurship.
2. A significant focus on entrepreneurship education and teaching methods that promotes entrepreneurial attitudes.
3. Inclusion of enterprising teaching techniques to enhance teacher entrepreneurial behavior through the co-creation of educational projects, finding curricula opportunities, innovating methodologies and evaluation/assessment of knowledge.
4. Teaching teachers how to train their colleagues and local communities. The benefits of entrepreneurship training will multiply if this happens.
5. A business coaching approach that allows teachers to follow-up, evaluate and coach their student's start-up projects, small businesses and mini-companies.

However, teacher preparation programs related to promoting entrepreneurship education become entangled in debate with inevitable challenges. Experiments already carried out in entrepreneurship education inform us about difficulties that might be found in practice. Partnering between the educational sector and industry, certification and recognition of practices, assessment/evaluation of the programs, difficult national contexts (where education is seen as a local issue) are examples of some of the challenges that must be met. To overcome these



obstacles, the learning environment must be prepared to foster creation, experimentation, accumulation and diffusion of professional knowledge in entrepreneurship education.

In order to develop a consistent and supportive model of entrepreneurship education within an effective national partnership, efforts should be made in planning ahead how this partnership will work. Entrepreneurship by its very nature involves both the educational and economic sectors. Researchers that have been observing the best practices conclude that the business sector does not automatically commit itself to other areas of activity, such as education, even though they demonstrate a positive attitude to such ideas. Therefore, proper planning and organizing a partnership model that involves business decision-makers and educators plays a crucial role. Defining a common vision and the individual responsibilities and roles in the partnership (schools, universities, teachers, community actors, enterprise and government) is of the utmost importance in order to keep all parties involved in the process.

In summary, Entrepreneurship Education demands the development of a mindset that is for, and about, entrepreneurship. Thus, in implementing entrepreneurship education effectively there is a clear need to establish collaboration between schools/universities, communities, enterprises and the government. Enterprises have the practical knowledge and the environment that is lacking in academia, while teachers and students can develop the skills and the willingness to innovate and further develop new business ideas. The decision-makers need to provide the necessary endorsement to shape educational policies into academic curricula. Bringing these protagonists together is the key to developing a successful entrepreneurial program for educational institutions, one that will benefit students and ultimately society.

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