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Disclaimer

This report remains the responsibility of the authors. The views expressed do not necessarily represent those of the European Commission.

Contents

| | |
|--|-----------|
| Executive Summary | 4 |
| 1 Introduction..... | 5 |
| 1.1 Introduction | 5 |
| 1.2 EU policy context | 5 |
| 1.3 Objectives of the present study..... | 8 |
| 1.4 Components of the Final Report | 9 |
| 2 Entrepreneurship education: Main concepts | 10 |
| 2.1 What is entrepreneurship and entrepreneurship education?..... | 10 |
| 2.2 Entrepreneurship education in school curricula and related pedagogy | 14 |
| 2.3 Entrepreneurship education and teacher education | 20 |
| 2.4 Implications for the present study | 21 |
| 3 Study approach..... | 23 |
| 3.1 Scope of the study | 23 |
| 3.2 Methodology..... | 23 |
| 4 Entrepreneurship education in teacher education: How common is it and what forms does it take?..... | 29 |
| 4.1 Context: Entrepreneurship education in national strategies and within national school curricula..... | 29 |
| 4.2 How frequent is entrepreneurship education in teacher education? | 31 |
| 4.3 How is the implementation of entrepreneurship education in teacher education structured? | 39 |
| 4.4 Which levels of teacher education are addressed? | 43 |
| 5 Implications..... | 45 |
| 5.1 Main observations | 45 |
| 5.2 Success factors and obstacles in mainstreaming entrepreneurship education in teacher education..... | 48 |
| 6 Country Reports and Case Studies..... | 52 |
| Austria..... | 53 |
| Pedagogical College Vienna | 56 |
| Belgium-Flanders | 58 |
| GROUP T – International University College Leuven – Leuven Education College | 61 |
| Provincial College Limburg..... | 65 |
| Artesis College Antwerp | 68 |
| Croatia..... | 70 |
| University of Pula..... | 72 |
| Finland..... | 74 |
| University of Jyväskylä | 78 |
| University of Oulu, Kajaani Teacher Education Unit | 82 |
| University of Turku..... | 85 |
| Hungary | 89 |
| Corvinus University of Budapest | 91 |
| The Netherlands | 93 |
| Avans University of Applied Sciences | 96 |
| HAN University of Applied Sciences | 98 |

| | |
|---|-----|
| Norway..... | 101 |
| University of Nordland in Bodø..... | 105 |
| Oslo University College..... | 107 |
| Hedmark University College..... | 109 |
| Sogn og Fjordane University College..... | 111 |
| Portugal..... | 114 |
| University of Coimbra, Faculty of Psychology and Educational Sciences and Faculty of Economics..... | 116 |
| University of Madeira..... | 117 |
| Sweden..... | 118 |
| Kristianstad University..... | 121 |
| Gävle University College..... | 124 |
| Umeå University - Umeå School of Education..... | 126 |
| UK - Scotland..... | 131 |
| University of Strathclyde-School of Education..... | 135 |
| Annex 1 Literature List..... | 138 |
| Annex 2 Main headings of the web-site screening template..... | 142 |
| Annex 3 Interview questions..... | 144 |
| Annex 4 List of teacher education institutions screened..... | 146 |
| Annex 5 List of relevant projects..... | 165 |

Executive Summary

The European Commission has specifically linked the development of entrepreneurial attitudes and behaviours to education and training. The development of a sense of initiative and entrepreneurship is one of the eight key competences recognised at EU level in the Key Competences Reference Framework.

This study is an attempt to get a first impression on the level and type of activities taken at practitioner level to include entrepreneurship in teacher education. It is a pilot study that might serve as a basis for the design of further research, but is by no means complete or exhaustive.

It was intended to get an overview of activities; in other words, modules, methods, projects and courses that train and prepare student teachers for entrepreneurship education. Those activities pursued by teacher education institutions may serve as inspiration for other institutions across Europe.

The study covers a selection of ten countries, eight EU Member States and two countries outside the EU, as follows: Austria, Belgium (Flanders only), Finland, Hungary, Netherlands, Portugal, Sweden, the UK (Scotland only), Croatia and Norway. In all countries studied, political willingness to implement entrepreneurship education in schools at primary and secondary level has been identified. Entrepreneurship education in schools and higher education institutions is promoted by national initiatives and strategies; curricula and schools (and hence teachers) are expected to develop knowledge, skills and attitudes in this area.

The study followed a three step methodology. After comprehensive web-site review of all teacher education institutions in a given country, interesting examples have been selected. For those examples, further information was collected through telephone interviews.

On the basis of the data collected through those steps of research, a high level of activities in initial teacher education was found in two countries (Finland and Norway). A medium level of activity was found in four countries, (Belgium-FI, Netherlands, Sweden and UK-Scotland); a low level of activities in initial teacher education has equally been found in four countries (Austria, Croatia, Hungary and Portugal). Twenty-one specific activities have been described in more detail.

Four main types of ongoing activities in initial teacher education have been identified: Compulsory modules implemented in initial teacher education, elective modules, extracurricular activities and horizontal institutional approaches.

However, entrepreneurship education still seems to be, across the countries, a quite uncommon topic in initial teacher education. Implementing modules and courses of entrepreneurship education in initial teacher education and introducing innovative methods of learning and working seems to be a task that can hardly be realised on a short term basis. Initiatives take time to get accepted at practitioners' level and achieve impacts on teachers and students.

Yet experience shows that, once it has been established, the concept and the innovative methods associated with entrepreneurship education gain popularity among teachers and students very quickly.

1 Introduction

1.1 Introduction

This Final Report is the final deliverable of the study 'Mapping of teachers' preparation for entrepreneurship education', contracted by DG Education and Culture (DG EAC) to GHK.

The study aims at identifying and mapping entrepreneurship education implemented by higher education institutions in the context of initial teacher education. The purpose of this report is to present the results of the complete mapping exercise and an overview on the main findings. Three components of data collection serve as the basis for the analysis:

- The screening of the websites of 181 teacher education institutions and 612 teacher education programmes in the ten selected countries;
- A synoptic report on strategies, policies and initiatives etc. pursued on national level in the ten selected countries (Austria, Belgium-Flanders, Finland, Hungary, Croatia, Netherlands, Norway, Portugal, Sweden, UK-Scotland);
- 21 case studies on selected examples of interesting activities in the field of teachers' preparation for entrepreneurship education.

1.2 EU policy context

1.2.1 Teacher Education on the EU agenda

In response to proposals made by the European Commission, the Education Council in November 2007¹ for the first time adopted Conclusions that set a European agenda for improving the quality of teaching and teacher education. Ministers recognised that the quality of teaching is the single most important within-school factor affecting student attainment.

The importance of the teaching profession was again highlighted at an Informal Ministerial Meeting in Gothenburg in September 2009 under the Swedish Presidency of the EU and this was followed by the adoption of new Council Conclusions² in which Member States committed themselves to improving the professional development of teachers and school leaders.

These Conclusions, taken together, provide a comprehensive set of EU priorities for improving Teacher Education. They include:

- Improving teacher competencies, making sure that they possess the necessary pedagogical skills to teach their own subjects and the transversal key competences, including in heterogeneous classes and making the best use of ICT;
- Improving the quality of Initial Teacher Education (ITE) which should provide a Higher Education qualification and should balance research-based studies and teaching practice;
- Ensuring the quality of Teacher Educators (Teacher Trainers) who should have solid practical teaching experience, good teaching competences and be of a high academic standard; and

¹ Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council, on improving the quality of teacher education (Official Journal C 300, 12.12.2007).

² Conclusions of the Council and of the Representatives of the Governments of the Member States, meeting within the Council of 26 November 2009 on the professional development of teachers and school leaders (OJ 2009/C 302/04)

- Promoting professional values and attitudes in the teaching profession (in which teachers adopt a culture of reflective practice, undertake autonomous learning, engage with research, and collaborate extensively with colleagues).

It will be noted that this agenda, which emphasises the need to improve Teacher Education systems so that they produce teachers who are reflective, creative and innovative as well as highly competent and knowledgeable in their fields; in this it complements the EU entrepreneurship policy agenda, which is described below.

1.2.2 Entrepreneurship education on the EU agenda³

The inclusion of entrepreneurship education on the EU agenda is closely linked to the debate on 'entrepreneurship'. Entrepreneurship is recognised as a key factor for fostering economic growth based on innovation (European Commission, 2006). The contribution of entrepreneurship to the EU economy has been acknowledged at EU level in the Lisbon Strategy (2000-2010)⁴ and the related New Partnership for Growth and Jobs (2005)⁵ as well as in the recent Europe 2020 Strategy⁶.

The European Commission has specifically linked the development of entrepreneurial attitudes and behaviours to education and training.⁷ As highlighted by the Commission Communication 'Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning' (2006), education and training can support the development of an entrepreneurial mindset and behaviour amongst EU citizens and hence entrepreneurship.

The development of **a sense of initiative and entrepreneurship** is one of the eight key competences⁸ recognised at EU level in the Key Competences Reference Framework.⁹ The key competences have been identified as those which all individuals need for their personal fulfilment and development, active citizenship, social inclusion and employment. A 'sense of initiative and entrepreneurship' is defined by the European Parliament and the Council (2006) as:

'... an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. This supports individuals, not only in their everyday lives at home and in society, but also in the workplace in being aware of the context of their work and being able to seize opportunities, and is a foundation for more specific skills and knowledge needed by those establishing or contributing to social or commercial activity. This should include awareness of ethical values and promote good governance'.

In line with this, entrepreneurship education aims at developing entrepreneurship related competences. These include:

- Specific knowledge (e.g. knowledge of the workings of the economy);

³ This section is largely identical with a synthesis that has been previously presented in another deliverable, namely the Inception Report.

⁴ http://europa.eu/scadplus/glossary/lisbon_strategy_en.htm

⁵ http://europa.eu/legislation_summaries/employment_and_social_policy/growth_and_jobs/c11325_en.htm

⁶ http://europa.eu/press_room/pdf/complet_en_barroso_007_-_europe_2020_-_en_version.pdf

⁷ See DG Enterprise and Industry website, http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/index_en.htm

⁸ A competency is defined by the European Commission as a combination of knowledge, skills and attitudes. Source: Recommendation on Key Competences for Lifelong learning 2006/962/EC.

⁹ Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006H0962:EN:NOT>

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

Entrepreneurship education has been addressed by a several initiatives at EU level which include namely:

- **The Oslo Agenda for Entrepreneurship Education in Europe**¹⁰ (2006): the Agenda provides concrete proposals, which can be adapted by stakeholders according to the local context;
- **Reports and research** on entrepreneurship education: the 'Entrepreneurship In higher education, especially within non-business studies' (2008), the 'Best procedure project on mini-companies in secondary education' (2005) and the 'Best procedure project on education and training for entrepreneurship' (2002)¹¹ explore key issues regarding the teaching of entrepreneurship and identify best practices and solutions.

Moreover, the **Commission High Level Reflection Panels on Entrepreneurship Education**¹² brought together policy makers at European and national level, from both the education and the enterprise departments with a view to facilitating the exchange of best practice between Member States, EEA countries and candidate countries. The work undertaken by the High Level Reflection Panels on Entrepreneurship Education has resulted in various outputs (e.g. report, studies and recommendations), which further support the Commission but also the Member States' work in the area of entrepreneurship education.

In April 2011, a **High Level Symposium on Entrepreneurship Education** took place in Budapest.¹³ This Symposium was dedicated to entrepreneurship education in teacher education. Preliminary results of this study have been presented at the Symposium.

The policy strategies and initiatives mentioned above also touched upon the issue of **teacher education** for entrepreneurship education. A recent EU report (DG Enterprise and Industry, European Commission, 2010) has recognised that teachers have a critical role to play in the development and promotion of entrepreneurship education alongside other stakeholders such as regional/local authorities and the private and non-profit sector. However, the European Commission also emphasises that the provision of specific education to teachers remains insufficient (DG Enterprise and Industry, European Commission, 2007). The need for increased support to teachers and educators in several key areas has also been outlined in the Oslo Agenda for Entrepreneurship Education in Europe, which recommends the following:

- To provide specific education to teachers in entrepreneurship and link this to the national curriculum reforms;
- To adopt innovative methods to train teachers in entrepreneurship;
- To set-up incentives at school level to enable teachers to teach entrepreneurship;

¹⁰ http://ec.europa.eu/enterprise/policies/sme/documents/education-training-entrepreneurship/index_en.htm

¹¹ http://ec.europa.eu/enterprise/policies/sme/documents/education-training-entrepreneurship/index_en.htm

¹² <http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/reflection-panels/>

¹³ High Level Symposium on Entrepreneurship Education – Teacher Education as a critical success factor, Budapest, 7 – 8 April 2011: http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/teacher-education-entrepreneurship/index_en.htm

- To launch innovative actions for education teachers on entrepreneurship with a European dimension which could be supported under the Community Lifelong Learning Programme; and
- To support the mobility of educators across Europe.

1.3 Objectives of the present study

The approach to entrepreneurship education defined in EU policy documents suggests that entrepreneurship education has a broad range of aims. It entails the development of skills, knowledge and attitudes which are both specific to entrepreneurship education and generic to education in general (i.e. communication, analysis, motivation and determination to meet objectives).

The aim of the study was to get an overview of activities taken at practitioner level to include entrepreneurship in initial teacher education; in other words, activities, projects and courses that train student teachers for entrepreneurship education. This overview is a first step to identify 'good practices in the Member States that can serve as inspiration for institutions across Europe to accelerate action in Member States.'¹⁴

The study covers a selection of ten countries, eight EU Member States and two countries outside the EU, as follows: Austria, Belgium (Flanders only), Finland, Hungary, Netherlands, Portugal, Sweden, the UK (Scotland only), Croatia and Norway.

The main intention was to learn more about the level of activity in the selected countries, get an overview on specific forms and aims of entrepreneurship education as implemented by teacher education institutions, and to find evidence on learning outcomes (e.g. the specific knowledge, skills and attitudes) and impacts that have been achieved up to date.

¹⁴ European Commission, DG EAC, ORDER FORM No 129, governed by the provisions of Framework Contract No EAC 19/06 signed on 5.12.2006.

1.4 Components of the Final Report

This report is structured as follows:

| | |
|-----------|--|
| Section 2 | Provides an overview of the key concepts that underpin entrepreneurship education together with an analysis of the theory and implementation of entrepreneurship education and the consequences on initial teacher education. This analysis is based on a literature review and constitutes the theoretical basis for identifying the approaches to entrepreneurship education developed by teacher education institutions. |
| Section 3 | Describes the scope of the study and presents the methodology applied. |
| Section 4 | Presents the main findings. It refers to the frequency of entrepreneurship education in teacher education in the selected countries as well as to the main forms of entrepreneurship education in teacher education. The main target groups addressed are presented. |
| Section 5 | Contains the discussion of success factors and obstacles in mainstreaming entrepreneurship education in teacher education and statements as to the impacts observed. |
| Section 6 | Reports on the general development and the specific strategies and activities implemented in the 10 selected countries are presented, together with 21 case studies describing interesting activities implemented by teacher education institutions for future primary and secondary school teachers (excluding VET). These activities include classes, courses and projects in teacher education institutions as well as pedagogical methods. In some cases, a general approach to teaching and learning is described that encompasses the whole institution. |

The Annexes are structured as follows:

- Annex 1 provides a list of literature sources used;
- Annex 2 contains the main headings of the template used for teacher education institutions' web-site screening;
- Annex 3 contains the interview questions to explore examples studied in greater depth;
- Annex 4 presents the full list of 203 teacher education institutions initially found in the selected countries' websites, which were screened as part of this assignment. It is indicated in the list whether an element of entrepreneurship education in initial teacher training has been found.
- Annex 5 presents a list of projects relevant for the development of concepts of entrepreneurship education in general and/or teacher education in particular that has been identified during initial research.

2 Entrepreneurship education: Main concepts

2.1 What is entrepreneurship and entrepreneurship education?

2.1.1 Definition of entrepreneurship

Defining the concept of entrepreneurship is fundamental both for defining entrepreneurship education and for understanding the challenges related to the implementation of entrepreneurship education.

Defining the concept of entrepreneurship is not an easy task, simply because there is no consensus amongst scholars on how to approach the phenomenon of entrepreneurship. 'Entrepreneurship' has been widely researched and a wealth of literature exists on the topic. In particular, an important body of literature looks at the concept of entrepreneurship. Whilst entrepreneurship was initially conceptualised in the economic theory by economists such as Cantillon (1730), Say (1803), Schumpeter (1934) and Kirzner (1979), 'entrepreneurship' started to attract the attention of other scholars from sociology, psychology and management studies.

A literature review shows different approaches to the concept of entrepreneurship. In particular, entrepreneurship can be approached both in terms of entrepreneurial firms and entrepreneurial people. Whilst the first strand looks at the characteristics of the entrepreneurial firm (i.e. small, fast-growing, organic and network-based), the second strand focuses on the entrepreneurial person (Fernald, Solomon & Tarabishy, 2005). Another approach to defining entrepreneurship may also be structured around Stevenson and Jarillo's (1990) question about *what, why and how*, i.e. *what* happens when entrepreneurs act, *why* do entrepreneurs act and *how* do they act? Irrespective of the approach taken to define entrepreneurship, there is consensus that the entrepreneur plays an important role in making entrepreneurship happen. Being entrepreneurial or being an entrepreneur requires certain specific skills, qualities, attitudes and values. However, depending on the approach taken to define entrepreneurship, the qualities, skills and values required to be an entrepreneur will bear some variations. Thus, whilst for Schumpeter (1934) an entrepreneur is risk-taking and innovative, Wilken's (1979) entrepreneur is daring, aggressive and has an intrinsic need for achievement. For Stevenson and Jarillo (1991), entrepreneurs have the capacity to identify and grasp opportunities and they use their skills (e.g. persuasiveness, negotiation, strategic thinking) in order to achieve their aims. As a result, entrepreneurship is linked to a broad range of skills and attitudes, ranging from creativity, innovation, risk-taking, leadership and sense of initiative to networks and passion.

More recent scholars have pursued the analysis of entrepreneurship in the wake of these seminal authors. In keeping with the psychological/sociological approach of entrepreneurship, Cardon, Wincent, Singh and Mateja (2009) link entrepreneurs to their 'entrepreneurial passion', which is understood as consciously accessible intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur. Kwiatkowski (2004) acknowledges that the identification and use of opportunities lie at the heart of entrepreneurship, however he also emphasises that such a process is made possible thanks to an individual's networks or 'social capital'.

The various definitions of entrepreneurship in the existing literature lead to the following conclusions in relation to the present study:

- There currently exists a **variety of approaches to defining/analysing 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 behavioural/emotional attitudes. This may suggest that there is no 'simple' way of conceptualising the 'entrepreneur' and what makes an individual 'entrepreneurial';

- Skills, knowledge and behavioural/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).

Based on the various theoretical approaches to entrepreneurship it is possible to identify a range of knowledge, skills and attitudes that are often associated with entrepreneurship behaviour or entrepreneurial persons.¹⁵ This summary is presented in Table 2.1.

Table 2.1 Knowledge, skills and attitudes often linked to entrepreneurship

| Knowledge and Skills | Behavioural/ Affective Attitudes |
|--|---|
| <ul style="list-style-type: none"> ▪ Ability to organise a new business ▪ Ability to make decisions and develop of strategies ▪ Ability to find resources ▪ Broad understanding of the workings of the economy and the opportunities and challenges facing an employer or organisation ▪ Ability to identify and grasp available opportunities for personal, professional and/or business activities ▪ Awareness of ethical values and promotion of good governance ▪ Ability to work both as an individual and collaboratively in a team ▪ Ability to judge and identify one's strength and weaknesses ▪ Ability to assess and take risks as and when warranted ▪ Networking skills ▪ Proactive project management skills ▪ Effective representation and negotiation skills | <ul style="list-style-type: none"> ▪ Creativity / innovativeness ▪ Sense of initiative ▪ Pro-activity ▪ Independence ▪ Risk taking ▪ Convincing / persuasive ▪ Desire for independence ▪ Motivation and determination to meet objectives ▪ Need for achievement ▪ Daring / courageous ▪ Willingness to face uncertainty ▪ Open-minded to opportunities or solutions ▪ Assertiveness ▪ Passionate ▪ Visionary |

These knowledge, skills and attitudes can be encouraged in the context of education and training. They can of course also be achieved through other means (leisure activities, participation in sport, family environment, etc.). There is little consensus on how certain skills, knowledge and attitudes are (best) acquired. However, the idea

¹⁵ E.g. in the European Reference Framework 'Key Competences for Lifelong Learning', European Communities, 2007. Available online: http://ec.europa.eu/dgs/education_culture/publ/pdf/l-l-learning/keycomp_en.pdf

behind entrepreneurship education is that education and training has a role to play in strengthening and encouraging these skills and attitudes and providing the related knowledge.

The remainder of this section presents a synopsis of the current definitions of entrepreneurship education and associated pedagogies.

2.1.2 Definition of entrepreneurship education and its aims

When moving from entrepreneurship to entrepreneurship education, one can notice that entrepreneurship education has been substantially less researched by scholars. In the past, the approach to entrepreneurship education has 'suffered' from a business bias, as entrepreneurship education has often been understood in the narrow sense of business studies. However, in the past decade a body of research based on a broader vision of entrepreneurship education has been developed. Some of the education institutions studied later in this report have paid important attention to researching entrepreneurship education, exploring the theoretical foundations and practical implications as well as measuring impact. The synopsis below presents the major trends in this recent debate on entrepreneurship education. It does by no means provide a comprehensive literature review of the topic (see Table 2.2).

Projects and national or European initiatives have also been crucial in the development and testing of practical approaches to entrepreneurship education. For instance, impulses from the concepts of 'citizenship education'¹⁶ or 'heritage education'¹⁷ – which also aim at the development of transversal key competences – could be taken. A list of projects feeding into the development of concepts of entrepreneurship education in general and/or teacher education in particular that has been identified during initial research is presented in Annex 5.

Referring to enterprise education, Hytti and O'Gorman (2004) highlight that many questions remain open in relation to the definition of enterprise education, its aims and what may be achieved through it. Recent research on entrepreneurship education aims at disentangling entrepreneurship education from the business area, thus leading to an enrichment of the concept. The approaches to entrepreneurship education developed by scholars such as Kyrö (1997), Hytti (2002) and Gibb (2005) have helped to improve the conceptualisation of entrepreneurship education and have opened new avenues for research, notably in the area of entrepreneurship education pedagogy.¹⁸

¹⁶ Cf. DG Education and Culture, 'Study on Active Citizenship Education', 2007. Available online: http://ec.europa.eu/education/pdf/doc248_en.pdf

¹⁷ Cf. AQUEDUCT, a Comenius project, Ref: 502572-LLP-1-2009-1-BE-COMENIUS-CMP. Source: http://eacea.ec.europa.eu/llp/results_projects/documents/compendium_2009_comeniue_en.pdf

¹⁸ See the work undertaken by Seikkula-Leino, Johanna Mattila, Tiina Rytkölä and Elena Ruskovaara.

Table 2.2 Main approaches to entrepreneurship education in the existing literature

| Source | Definition/understanding | Comments on the definition/approach | Associated knowledge and skills | Associated behavioural/affective attitudes |
|--|--|---|--|--|
| Kyrö (1997) 'Yrittäjyyden muodot ja tehtävä ajan murroksessa' | Entrepreneurship education deals with three main components: 1) self-oriented entrepreneurship, i.e. this refers to an individual's self-oriented behaviour and his personal development 2) internal entrepreneurship, i.e. an individual's entrepreneurial and enterprising behaviour 3) external entrepreneurship, i.e. doing business, starting an enterprise. | Entrepreneurship education is approached at the individual's level and the different contexts in which the latter evolves. | Skills related to self-orientated entrepreneurship: self-awareness, creativity, responsibility for learning. Skills related to internal entrepreneurship: co-operation and interaction. Skills related to external entrepreneurship: innovative, generating business ideas. | Motivation, self-confidence, eagerness to cooperate, general awareness of entrepreneurs and entrepreneurship, positive attitude towards business and entrepreneurship, and positive attitude towards change. |
| Hytti (2002) 'State-of-Art of Enterprise Education in Europe – Results from the Entredu Project' | Entrepreneurship education is defined in terms of aims, which are: a) learn to understand entrepreneurship b) learn to become entrepreneurial and c) learn to become an entrepreneur. | Entrepreneurship education is understood according to its aims. | Knowledge: knowledge of the economy and business world, knowledge of what is an entrepreneur and entrepreneurs' role in the economy and society, how to start a business, how to manage a business. Skills: take responsibility for one's learning, career and life. | Motivation, self-drive, sense of initiative, awareness of entrepreneurs and entrepreneurship, positive attitude towards business and entrepreneurship, and positive attitude towards (organisational) change |
| Gibb (2005) 'The future of entrepreneurship education – Determining the basis for coherent policy and practice?' | Entrepreneurship education is about learning <i>for</i> entrepreneurship, learning <i>about</i> entrepreneurship and learning <i>through</i> entrepreneurship. | Gibb's approach to entrepreneurship education is based on both the content of entrepreneurship education and its delivery method. | Skills: achievement of goals, creativity, capacity to discover existing opportunities. | Curiosity, individual responsibility, resilience, entrepreneurship considered as a natural and positive career choice. |

Notwithstanding these differing approaches to entrepreneurship education, it appears that most authors tend to agree on the aims of entrepreneurship education. By and large, entrepreneurship education has three objectives:

- Equip individuals with the necessary skills, knowledge and attitudes which will allow them to **take responsibility of their own learning, career and life**. This includes skills such as responsibility for learning, self-awareness and attitudes such as self-drive, motivation, self-confidence and individual responsibility;
- Increase individuals' **awareness of and alertness** to the outside world, the economy, opportunities and changes in general. This aim entails the acquisition of knowledge (e.g. knowledge of the economy and business world) and specific attitudes (e.g. awareness of and positive attitude towards entrepreneurship and change in general);
- Encourage and support **entrepreneurial and enterprising behaviour** and hence innovation. This entails skills (e.g. creativity and innovation, capacity to discover existing opportunities, cooperation), knowledge (e.g. starting and running a business) as well as attitudes (e.g. sense of initiative).

Several skills and attitudes addressed by entrepreneurship education are not specific to entrepreneurship education alone, but are developed through many other means, including through a range of education and training activities that do not have to be labelled as entrepreneurship education. Distinguishing between the aims of entrepreneurship education and those of other types of education may hence be difficult in certain education contexts. Similarly, certain types of education, although not called entrepreneurship education, may *de facto* constitute entrepreneurship education, since they aim at fostering skills and attitudes linked to entrepreneurship education. This means that entrepreneurship education is often conceptualised as being embedded in different subject-specific teaching as a cross-curricular competence (rather than subject specific one). On the other hand, some knowledge may need to be acquired through subject specific teaching of entrepreneurship. Furthermore, it can be argued that the content, aims and methods of entrepreneurship education vary according to the level of education and the target group: in certain respects, they will be radically different in primary education than in higher education¹⁹.

2.2 Entrepreneurship education in school curricula and related pedagogy

2.2.1 Existence of coherent national strategies

What are the consequences of the above analysis on the inclusion of entrepreneurship education in school curricula and the development of related pedagogical methods?

Given the wide range of skills, knowledge and attitudes addressed by entrepreneurship education, it follows that **entrepreneurship education needs to be embedded** in a coherent and comprehensive manner in the national curricula. As said above, mainstreaming entrepreneurship education entails that it is delivered both through standalone activities and as a cross-curricular competence.

The number of Member States having recognised entrepreneurship education as an objective of their education systems and explicitly embedded it in their national framework curricula (i.e. Spain, Finland, Cyprus, Ireland, UK), has significantly grown over the years.²⁰ A Commission report from 2007 stated that much remains to be done in terms of the implementation of teacher education and teaching materials (DG Enterprise and Industry, European Commission, 2007). Another Commission report from 2009 on the progress against the Lisbon objectives in Education and Training on

¹⁹ This is for example the point of view taken in the YVI project studied later in this report.

²⁰ Section 6 contains comprehensive country overviews on the activities in each country. Furthermore see: Eurydice and Ploteus databases, and 'Progress towards the Lisbon objectives in Education and Training. Analysis of implementation at the European and national levels.' European Commission, 2009, pp.64-66

national and European level highlighted that most countries have made substantial progress during the last years in promoting the entrepreneurial dimension of the transversal key competence 'sense of initiative and entrepreneurship'.²¹

The embedding of entrepreneurship education can also be supported by the development of national strategies for entrepreneurship education. As highlighted in a recent Commission report (DG Enterprise and Industry, European Commission, 2010),²² Member States have made variable progress in developing a strategy and implementing entrepreneurship education. Some countries have set up strategies dedicated to entrepreneurship education while others have developed entrepreneurship education policies using alternative means, such as the national curriculum frameworks.

The table below highlights the status of implementation of entrepreneurship in the ten selected countries in 2007 and 2009.

Table 2.3 Inclusion of entrepreneurship as a key competence in the national curriculum (primary or secondary level) in 2007 and 2009

| Status of implementation | Countries (2007)* | Countries (2009)** |
|--|--|------------------------------------|
| Included as a key competence in the national/federal curriculum | Finland, UK, Norway | Finland, UK, Norway, Netherlands |
| Planned reforms or entrepreneurship partially included | Sweden | Croatia |
| Embedded in themes or across the curriculum | | Austria, Hungary, Portugal, Sweden |
| Action undertaken as part of a national level programme or strategy | | Belgium-NL, Finland, Sweden |
| Not included | Austria, Belgium, Croatia, Hungary, Netherlands, Portugal. | |

Sources: * DG Enterprise and Industry, European Commission, 2007

** Progress towards the Lisbon objectives in Education and Training. Analysis of implementation at the European and national levels. European Commission, 2009

Section 4 presents a more detailed overview on the status of the implementation of national strategies for entrepreneurship education and the role of entrepreneurship education within national curricula, based on the results of the research undertaken in this study.

²¹ Progress towards the Lisbon objectives in Education and Training. Analysis of implementation at the European and national levels. European Commission, 2009, pp. 66
Available online: http://ec.europa.eu/education/lifelong-learning-policy/doc/joint10/sec1598_en.pdf

²² 'Towards Greater Cooperation and Coherence in Entrepreneurship Education, Report and Evaluation of the Pilot Action High, Level Reflection Panels on Entrepreneurship Education initiated by DG Enterprise and Industry and DG Education and Culture', A report by ECOTEC, 2010.
Available online: http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/reflection-panels/files/entr_education_panel_en.pdf

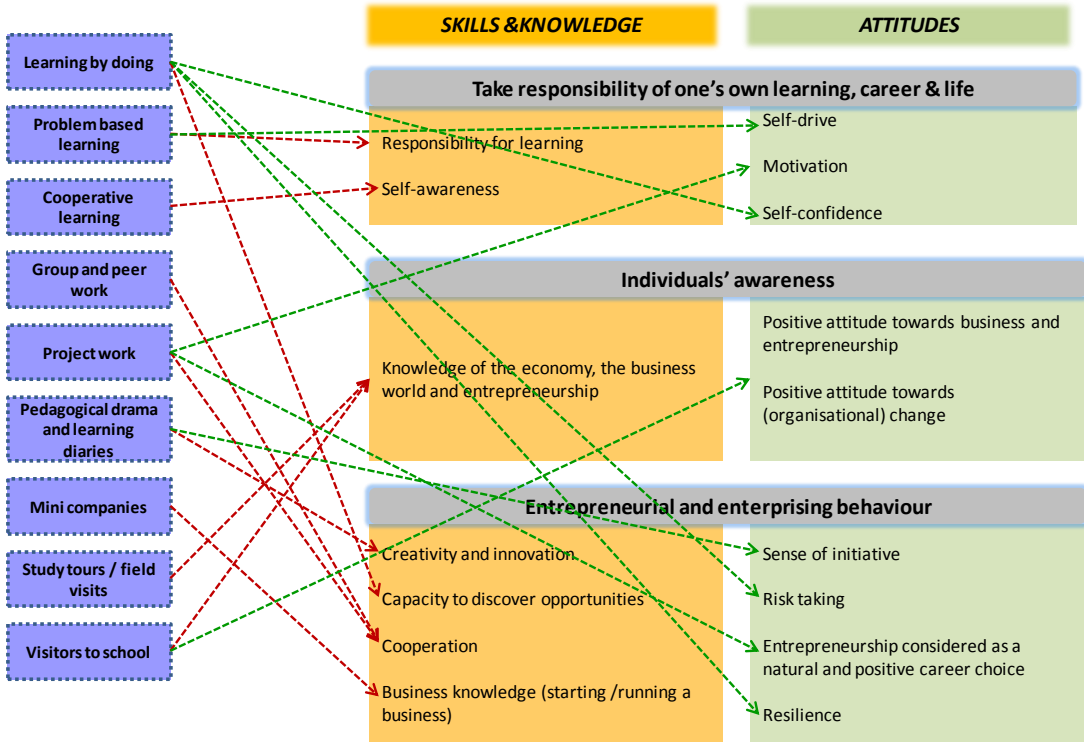
2.2.2 Pedagogy used in classroom

The successful implementation of entrepreneurship education also **depends on the pedagogies used in the classroom**. As shown by Gibb (2005), entrepreneurship education requires that an emphasis be put on pedagogies that allow students to experience and feel the concept. In order to do so, the learning context needs to be adequate (Gibbs, 2005). In particular, an adequate learning context for entrepreneurship education is defined by Gibb (2005) as follows: the learning environment is controlled and students do not feel insecure during the learning processes. At the same time, the learning process is flexible, interactive, based on multidimensional knowledge development and mistakes are regarded as a part of the learning process.

With regard to the pedagogical methods, Seikkula-Leino (2007) has identified several pedagogical methods for entrepreneurship education. These are, *inter alia*, co-operative learning, problem-based learning, group and peer work, project work, learning by doing, pedagogical drama and learning diaries as well as twin classes, mini-companies, study tours, field visits and inviting visitors to school.

Graph 2.1 below shows the working methods of entrepreneurship education and how these relate to the skills, knowledge and attitudes addressed by entrepreneurship education.

Graph 2.1: Skills, knowledge and attitudes of entrepreneurship education and related pedagogy



Source: Own analysis

As shown in Graph 2.1, some working methods are specifically adequate for supporting the acquisition of certain skills and knowledge (e.g. mini companies and field visits for entrepreneurship related knowledge and skills), whilst other working methods can equally be applied to the acquisition of several types of skills and attitudes (e.g. learning by doing, project work, problem based learning). Given the wide range of skills, knowledge and attitudes that entrepreneurship education aims at fostering, it is then crucial that a mix of working methods should be used in the classroom.

When moving from the theory of entrepreneurship education to its implementation in the classroom, one notes that the working methods used by teachers as well as the wider

school environment are not always conducive to the successful implementation of entrepreneurship education.

Seikkula-Leino, Ruskovaara, Ikävalko, Mattila and Rytkölä (2009) show for instance that in Finland, where entrepreneurship education is part of the curriculum and is generally well developed, teachers tend to use several working methods. In their pilot study, the Finnish researchers show that surveyed teachers²³ 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. Moreover, this method is very frequently used by teachers;
- **Facilitating students' projects in schools:** 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 the projects;
- **Study tours or company visitors** are also used by approximately half of the teachers surveyed, however on a less frequent basis;
- **Working in pairs, group work, cooperative methods,** 'learning by doing' and the use of real world simulation and creative problem solving techniques are also very popular and regularly used by teachers.

Table 2.4 below provides an overview of the most frequent and less frequent working methods used by Finnish teachers in entrepreneurship education.

Table 2.4 Working methods of entrepreneurship education used by Finnish teachers

| | Frequently used methods | Seldom used methods |
|---|---|---|
| Classroom activities | <ul style="list-style-type: none"> ▪ Talks/discussion on entrepreneurship, economic news ▪ Entrepreneurship stories as teaching material ▪ Guided students on how to manage their money ▪ Students writing articles/essays about entrepreneurship | <ul style="list-style-type: none"> ▪ Helped students draw business plans ▪ Presentation related to entrepreneurship ▪ Organisation of an entrepreneurship course ▪ Use of entrepreneurship games |
| Outside the classroom activities | <ul style="list-style-type: none"> ▪ Facilitated students' projects (party, other events) ▪ Guided (took part) in a project where students have created a play, exhibition, newspaper, book, etc. | <ul style="list-style-type: none"> ▪ Organised a visit from a company ▪ Enabled an entrepreneurship project ▪ Enabled a product development process ▪ Organised study visits to companies ▪ Enabled students to organise a bring-and-buy sale ▪ Enabled students to create their own company ▪ Enabled students to create marketing/other material for companies |

Source: Ruskovaara, E., Pihkala, T., Rytkölä, T. & Seikkula-Leino, J.

²³ The data was collected from twenty-nine teachers representing different levels of education and appointed by their organisations (thus composing the above-mentioned 'trial group'). Sixteen of them worked at the basic education level (elementary and upper level of comprehensive school), six at the upper secondary education level, and seven in basic vocational training. The teachers represent ten different municipalities and educational organization and come from different parts of Finland.

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

These findings confirmed those of Hytti and O’Gorman (2004), who have analysed 50 entrepreneurship education programmes targeting all levels of education in Austria, Ireland and the UK. Hytti and O’Gorman found that the working methods used (in decreasing frequency of occurrence) are as follows: ‘traditional’ teaching methods, business simulations, workshops, counselling/mentoring, setting up a business, study visits, games and competitions and practical training.

This finding holds not only for the pedagogy of entrepreneurship education, but also for the general educational pedagogy used in schools. When looking at teachers’ pedagogy across the EU and irrespective of the course taught, it appears that teachers tend to rely on traditional teaching methods and this despite the fact that teachers seem to agree on the importance of creativity in the classroom (Joint Research Centre, European Commission (2010).

The OECD Talis Study (2008)²⁴ showed similar results. In this study, teachers were asked to give an estimate on the frequency of the application of different teaching methods in classroom on a 5-point scale, ranging from “never or hardly ever” to “in almost every lesson”. Three categories of activities were eligible:

- “Structuring practices” (stating learning goals, summary of earlier lessons, homework review, checking the exercise book, checking student understanding during classroom time by questioning students).
- “Student-oriented practices” (students working in small groups to come up with a joint solution to a problem or task, student self-evaluation and student participation in classroom planning etc.).
- “Enhanced activities” (students working on projects that require at least one week completing, making a product, writing an essay, and debating arguments).

The OECD study found that teachers in the 23 participating countries (within and outside of Europe) tend to put greater emphasis on ensuring that learning is well structured than on student-oriented activities which are designed to grant students a bigger autonomy to structure their own learning process. Enhanced learning activities such as project work are even less frequently applied. With gradual differences, this pattern was found in every country; meaning that teachers in different regions of the world on average rather apply methods of structured learning than participative methods. They allow student co-determination of lessons and individually adapted tasks more often than they assign projects, debates, essays and the creation of products.²⁵

However, the application of instructional practices differs significantly between subjects. In mathematics, foreign languages and sciences, the predominance of structuring practices (checking understanding, summarising and controlling assignments) is especially strong. In subjects belonging to human and social sciences it seems to be more common to apply methods like students debates and project work and assign essays and work on products.²⁶

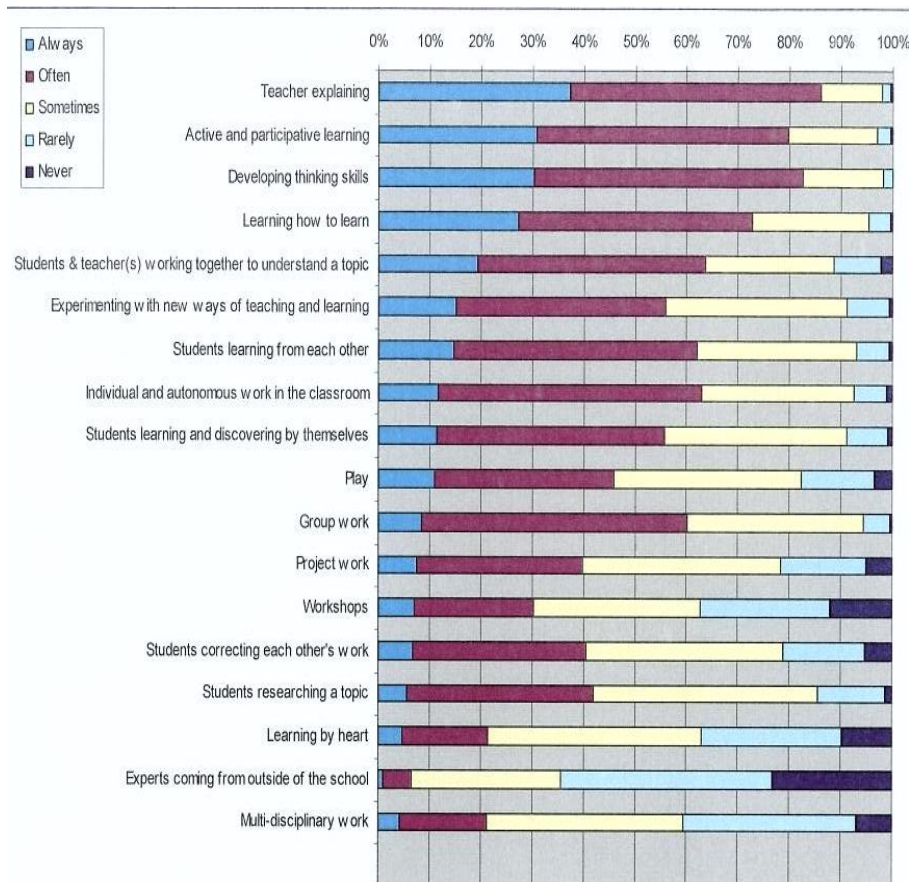
The graph below shows the proportions of the different types of activities taking place in classrooms across the EU (Joint Research Centre, European Commission (2010).

²⁴ Creating Effective Teaching and Learning Environments - FIRST RESULTS FROM TALIS (Teaching And Learning International Survey). OECD 2008, p. 87-101. Available Online: <http://www.oecd.org/dataoecd/17/51/43023606.pdf>

²⁵ Ibid, p.98

²⁶ Ibid, p.99

Graph 2.2: Type of activities taking place in the classroom²⁷



Source: Joint Research Centre, European Commission, 2010

As shown in the Joint Research Study, teachers tend to 'always' or 'often' make use of traditional activities (e.g. a teacher explaining), whilst less traditional methods are seldom practised (e.g. play work, multi-disciplinary work, experimenting with new ways of teaching and learning are 'always' used by 11%, 5% and 15% respectively, of teachers surveyed). This result suggests that the traditional and conventional aspects of teaching still play an important role amongst respondent teachers. Although the link between play and creative thinking skills has been shown in several studies²⁸, teachers in Member States do not fully use the potential of play and multi-disciplinary work to develop the creative and innovative sides of their pupils. Moreover, the same study shows that respondents teaching in primary schools are slightly more proactive in fostering skills and abilities connected to creativity than secondary school teachers (92% vs. 81% of respondent teachers).

In terms of **teaching material used by teachers** and irrespective of the course / activity taught, research suggests that textbooks are still the preferred resource used by the teachers surveyed (85%), with two thirds of respondents (64%) 'always' or 'often' following textbooks in their teaching (Joint Research Centre, European Commission,

²⁷ This figure relates to primary and secondary compulsory school teachers. Teachers were asked to report which activities take place during the lessons. Source: Joint Research Centre, European Commission (2010), 'Creativity in Schools: A Survey of Teachers in Europe', Romina Cachia, Anusca Ferrari, JRC Scientific and Technical Reports

²⁸ See for instance Howard-Jones, Taylor, & Sutton, 2002; Lieberman, 1977. Quoted in Joint Research Centre, European Commission (2010), 'Creativity in Schools: A Survey of Teachers in Europe', Romina Cachia, Anusca Ferrari, JRC Scientific and Technical Reports

2010). This is especially the case amongst young teachers, whilst more experienced teachers tend to rely less on textbooks.

The implementation of entrepreneurship education also depends on the wider educational context and how education institutions embed entrepreneurship education in their ethos and working structure. Here again, research shows that educational institutions are often resistant to change (Joint Research Centre, European Commission, 2010b). Many education institutions across Europe have an **ethos based on control and hierarchy** (e.g. between heads and teachers, between teachers and learners). This ethos is not only at loggerheads with the underlying principles and working methods associated with entrepreneurship education, but it may also hinder the implementation of a mix of pedagogical approaches which would be beneficial for achieving the aims of entrepreneurship education. Moreover, this contributes to a learning environment where conformity is rewarded and divergence and innovation are discouraged or punished (Joint Research Centre, European Commission, 2010b).

Another aspect related to the implementation of entrepreneurship education concerns the definition of a **set of clearly defined and broad outcomes** (Wilson, 2008). Wilson has shown how the assessment of entrepreneurship education is often based on simplistic approaches taken from the business area, with the success of entrepreneurship education being measured in terms of the number of start-ups created from universities.

2.3 Entrepreneurship education and teacher education

The successful implementation of entrepreneurship education ultimately depends on teachers and the pedagogies they apply in classrooms. Therefore, teachers' role in delivering and 'shaping' entrepreneurship education is of paramount importance. The importance of teacher education cannot thus be overestimated and teachers need to be trained and sensitised to entrepreneurship education. As argued by Gibb (2005), education institutions should be considered as entrepreneurial organisations, classrooms as entrepreneurial places and teachers as enterprising people.

This in turn means that institutions educating future teachers need to adopt new paradigms and pedagogical models, which will eventually equip future teachers with the necessary skills and attitudes for entrepreneurship education. In order to do so, initial teacher education should aim at the following:

- **Foster the development of skills and attitudes** which are central to entrepreneurship education amongst student teachers (e.g. self-drive, motivation, creativity). This means that student teachers need to have developed for themselves attitudes and values which are at the core of entrepreneurship education. Future teachers cannot foster these attitudes amongst their pupils if they do not believe in them and if are not convinced of their benefits. It should be noted that these skills and attitudes are not limited to entrepreneurship education alone, in the sense that other types of education may also aim at fostering them;
- **Increase student teachers' awareness** and understanding of entrepreneurship education, its aims and working methods. Teachers need to be aware of entrepreneurship in general and entrepreneurship education. They also need to develop positive attitudes towards entrepreneurship;
- **Equip student teachers with the specific skills and knowledge** to implement the pedagogy of entrepreneurship education: this entails student teachers being given practical training on how to combine various working methods in the context of entrepreneurship education (see Graph 2.1). This also entails student teachers being conformable with working in different learning contexts (e.g. classroom, outdoor activities, and community work).

This has obvious consequences for the types of skills and attitudes required by all those who play a role in educating teachers (teacher trainers, mentors, school leaders, etc). It is one of the aims of this study to further investigate in how far the acquisition of **core**

skills and values linked to entrepreneurship education is supported by initial teacher education programmes.

With regard to **teachers' awareness and understanding of entrepreneurship education**, Seikkula-Leino (2007) notes that Finnish teachers' awareness of entrepreneurship education has grown and attitudes have become more positive over time. At the same time, Seikkula-Leino, Ruskovaara, Ikävalko, Mattila and Rytkölä (2009) have found that teachers do not know enough about the aims of entrepreneurship education and struggle to define the basic concepts of entrepreneurship education. When asked about the aims of entrepreneurship education, teachers of primary, secondary and vocational schools in Finland tend to reply in terms of practices (Seikkula-Leino, Ruskovaara, Ikävalko, Mattila and Rytkölä, 2009). Moreover, teachers do not clearly see the link between the aims and the results of entrepreneurship education. On a more general note, the researchers also found that teachers have no understanding of entrepreneurship education in broader contexts, such as strategies and curricula.

The evidence sourced from the literature (see Section 2.3) indicates that the pedagogy used by teachers in the classroom is not conducive to entrepreneurship education. This may in part be accounted for as initial teacher education programmes do not seem – based on an overall observation – to equip future teachers with the specific skills and knowledge to implement the pedagogy of entrepreneurship education. For example, teachers interviewed within the framework of the Commission study (Joint Research Centre, European Commission, 2010) reported that very often initial teacher education is based on subject content rather than on pedagogical development, particularly for secondary school teachers. With regard to the use of Information and Communication Technology (ICT) as a pedagogical tool, the same study also shows that only 42% of respondent teachers reported having received training on how to use ICT in classrooms. Teaching methods based on active learning, which are most likely to foster a wider range of skills, knowledge and attitudes (as shown in Graph 2.1), presupposes that pupils have an active role whilst teachers mainly act as 'facilitators' and 'coaches' (Hytti and O'Gorman, 2004). However, Hytti and O'Gorman showed that teachers often seem to struggle in real situations when they have to find the right balance between the role of 'coach' and that of 'teacher'.

More research is required to understand the extent to which student teachers are educated to develop 'versatile' working methods in the classroom and to adapt the latter according to the aim pursued. However, initial evidence gathered for this study on the basis of a literature review, suggests that the pedagogy of entrepreneurship education remains to be further developed and embedded within initial teacher education programmes. As will be shown later, this is also confirmed by the review of teacher education institutions practices and offer of opportunities for future teachers to engage in entrepreneurship education.

2.4 Implications for the present study

Several implications for the present study were derived from the analysis above. In order to be able to identify activities, projects and courses that train student teachers for entrepreneurship education, it was important to clearly define the elements that were screened within the framework of the study.

It had become clear that looking at the aims and learning of teacher education programmes, outcomes may not provide sufficient indication on the extent to which these take account of entrepreneurship education. In some Member States, the competences that teachers are required to acquire during Initial Teacher Education are specified at national level; in others they are left to the Teacher Education Institution to determine. Whilst some education institutions may specifically refer to entrepreneurship education, its aims and working methods, other institutions may not refer to the latter in an explicit manner, but for instance to 'creative' or 'innovative' measures that support *de facto* the achievement of entrepreneurship education. To ensure that relevant

programmes and education institutions were not 'missed' during the mapping exercise, it was important to bear this distinction in mind.

Whilst the acquisition of pedagogical methods (identified as relevant for entrepreneurship education) may be integrated into initial teacher education programmes as a clearly identifiable course/activity, the acquisition of attitudes and skills which lie at the core of entrepreneurship education is likely to be achieved on a cross-curricular basis. Attitudes and skills like creativity and sense of initiative are not specific to entrepreneurship education alone and may be acquired through general learning and teaching methods or through other courses and activities. Citizenship modules and other types of activities (e.g. community work) for instance, may help foster attitudes and skills amongst student teachers, which are also relevant in the context of entrepreneurship education (e.g. self-drive, individual responsibility). This creates a clear challenge for a mapping exercise like the one carried out in view of this study. Section 3 shows how this challenge was tackled, but addresses also the caveats of the method followed.

3 Study approach

3.1 Scope of the study

This study is an attempt to get a first impression of the level and type of activities developed in ten European countries with regard to entrepreneurship education in initial teacher education. It is a pilot study that might serve as a basis for the design of further research, but can by no means be seen as complete or exhaustive.

Prior to the start of the research, it had been agreed that **a selection of ten countries** would be mapped. Austria, Finland, Norway, Sweden, UK (Scotland), Netherlands, Portugal, Hungary, Belgium (Flanders region) and Croatia have been selected for this mapping exercise, based on several criteria.

Since the main goal of the study was to find interesting examples of activities set up in the field, it seemed appropriate to concentrate on:

- Countries that have a national – or regional - strategy for entrepreneurship education in place (e.g. Belgium-Flanders, Sweden, Portugal, UK-Scotland et.al.);
- Countries that have entrepreneurship education included in their national curricula or other relevant policy documents (Croatia, Norway, Sweden, Netherlands et.al.);
- Countries with a track record of successful entrepreneurship education projects (e.g. Finland and Norway).

The assumption behind this sampling method was that the chances of identifying a substantial volume of activities on entrepreneurship education in teacher education as well as of finding a sufficient pool of interesting examples were higher in these types of countries. However, an attempt has been made to cover a range of education and training systems as well as to cover the east-north-west and south dimensions of Europe, even though the Nordic countries are over-represented in the sample. This is due to their sustained efforts in the past years (decade) to mainstream entrepreneurship education.

Teacher education is a broad field. The competences that teachers are required to acquire during initial teacher education are in some countries specified at national or regional level, and in other countries left to the teacher education institution to decide. To identify examples of activities, it was agreed to examine the programmes and curricula of higher education institutions delivering **initial teacher education** in greater detail. National or regional curricula of Member States, where they exist, have been taken into account to get a general idea on the relative importance of the topic. Programmes and institutions delivering continuing learning opportunities and further education for teachers regarding the subject were not included in the sample.

Only institutions providing initial teacher education for **primary and secondary teachers** were covered (not those preparing pre-primary education teachers or teachers for vocational education and training). The institutions covered fell into two categories: universities and (technical) colleges. In the majority of countries teacher education is split between both types, universities train primarily teachers for the secondary level, whilst colleges tend to focus on pre-schooling and primary education teachers. In some countries, universities prepare all types of teachers. Both state and private institutions have been included, as the provision of initial teacher education in some countries may be substantially covered by private institutions. However, institutions with focus on very specific types of teachers (for example theological institutions) were not covered.

3.2 Methodology

The study followed a three step methodology:

- Comprehensive website review of all teacher education institutions in a given country;
- Selection of interesting examples;

- Collection of further information on the selected examples.

These three steps are described below.

3.2.1 Website screening and further desk research

The objective of this first step was twofold:

- To get an understanding of the overall level of activity in entrepreneurship education for future teachers in the country;
- To identify a pool of potentially interesting examples that were further analysed in the next steps.

This step covered all teacher education institutions in the 10 countries selected. During the inception phase, a list of institutions providing initial teacher education has been drawn up.²⁹ Teacher education institutions were identified based on information available on the Internet, in particular, education databases (e.g. ENIC-NARIC³⁰, Unesco³¹, Cordis ERAWATCH³² and Eurydice) and networks. In most cases these sources provided the complete list of institutions offering teacher education in the countries covered. For some countries (e.g. Hungary, Sweden), the list of all institutions was taken from government websites (e.g. Ministry of Education).

Overall, a total number of 203 institutions had been identified in the 10 countries selected. Through the website screening it actually appeared that several institutions did not provide the type of teacher education covered in this study and hence were excluded. Finally, the websites of **182 teacher education institutions and 612 teacher education programmes** in the 10 selected countries were screened.

An Excel template was designed to serve as a tool for the screening of teacher education institutions websites in the selected countries (cf. Annex 2). The task was undertaken country by country by researchers speaking the appropriate languages. All 203 previously identified institutions and the teacher education programmes they provide, were recorded in the Excel template and screened one by one according to the following criteria (inter alia):

- Does the institution refer to the core aims of entrepreneurship education in its mission statement?
- Can learning outcomes (skills, knowledge, attitudes) be identified that are relevant for entrepreneurship education?
- Does the programme use working methods which draw on the pedagogy of entrepreneurship education?
- Which form do the offered activities of entrepreneurship take?
- Does the institution pursue other activities in the field of entrepreneurship education (projects, research, etc.)?³³

The researchers noted their observations and an initial assessment (institutions provides entrepreneurship education – yes/no/undecided) in the Excel sheet. The results were compiled and added up in order to provide an overview and set up a pool of information as a basis for the selection of interesting activities for further in-depth mapping. Gaps in information were also highlighted, in order to be able to address them during further research.

²⁹ The complete list of teacher education institutions screened is presented in Annex 4.

³⁰ More information: <http://www.enic-naric.net/index.aspx?c=Belgium>

³¹ More information: http://portal.unesco.org/education/en/ev.php-URL_ID=57477&URL_DO=DO_TOPIC&URL_SECTION=201.html

³² More information:

<http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&topicID=66&parentID=65&countryCode=A>

³³ The main headings of the website screening template are presented in Annex 2.

Consequently, the websites of teacher education institutions were the main source of information in this first step. The researchers were asked to look at:

- The department mission statements;
- The overall programme descriptions;
- The detailed programme descriptions and where available the descriptions of the content of courses.

This was the only feasible method that could be used in the scope of this study; however, it implies several caveats:

- The method depends on published information. Websites that are not well maintained may provide an incomplete or inadequate picture or the information found might be outdated. On the other hand, higher education institution websites are a major source of information for the information and orientation of prospective students. Therefore, it is reasonable to expect that they would provide up-to-date and rather comprehensive information.
- Pilot projects may not be found on the websites of the respective teacher education programmes, but on other locations; small projects in cooperation with other institutions may not be found at all;
- This approach only enables the capturing of approaches that are explicitly related to the theme of entrepreneurship education. Implicit approaches that are embedded in courses not clearly linked to entrepreneurship education are difficult to capture.

In addition and where available, other background material such as country reports, online databases, information on projects and academic articles compiled during the inception phase were also taken into account to complete and cross-check the information gathered from websites. As a result, 10 country reports were put together, providing the following information:

- Brief description of the organisation of teacher education (overall organisation of teacher education, number and type of institutions providing initial teacher education);
- Entrepreneurship education within the national education strategy (existence of a national strategy, embedding of entrepreneurship education in other policy documents, strategy pursued with regard to teacher education);
- Description of interesting projects and activities outside of teacher education institutions (if applicable);
- Results of the initial website screening (list of teacher education institutions providing entrepreneurship education and/or those where the principles of entrepreneurship education are taken into account);
- Preliminary assessment of the general level of activity found in the countries;
- Proposal for the selection of interesting activities.

3.2.2 Selection of interesting activities

As a result of the website screening, a list of teacher education institutions that provided a form of entrepreneurship education and/or took the pedagogy and principles of entrepreneurship education into account was identified.

Thirty-five institutions and activities were pre-selected that seemed suitable for in-depth mapping, based on the following criteria:

- Even distribution amongst countries covered;
- Even distribution between the different forms of activities found. It was envisaged to provide examples highlighting the full spectrum of approaches and activities implemented in the selected countries (see Section 4);
- Even distribution among the target groups in focus (teachers in primary/secondary education, subject specialists);

- Mix of formal and non-formal learning opportunities (e.g. projects which are labelled differently but nevertheless help to develop competences related to entrepreneurship education – projects on citizenship education, research activities, etc.);
- Traditional activities and approaches vs. more innovative ones. It was considered important to select a mix of approaches to entrepreneurship education, thus ensuring that new, innovative and more traditional, well established activities would be similarly present.

In regards to the assessment of traditional vs. innovative; the criteria stated in the Terms of Reference were applied:³⁴

Innovative activities

- Teach students how to master innovative teaching methods that promote entrepreneurial attitudes and that can be applied in various subjects;
- Convey to teacher students that entrepreneurship is a key competence for life and therefore an important competence to teach;
- Teach students to be able to provide multidisciplinary entrepreneurial learning across subjects;
- Teach students how to work together with the local community (public sector, private sector and third sector) to supply relevant learning contexts, etc.

Traditional activities

- Convey knowledge on how to start and run a business (financing, drafting a business plan, etc.);
- Provide learning activities on mini companies, business simulation activities, etc.

For each country, a selection of two to five examples was made – taking into account that in big countries or in countries that are at the forefront of entrepreneurship education, more interesting activities were found.

As a result of this selection, 28 examples were selected for further review (see below).

3.2.3 Mapping of interesting activities

To attain more detailed information about the examples selected, a telephone interview³⁵ of approximately one hour was conducted with an individual in the teacher education institution in charge of a given activity. The interviews were structured and took place over the phone. Given the pilot nature of this study, it was acceptable to base the examples' description based on only one interview. But, if in the future a more detailed assessment of these approaches is to be carried out, more interviews would be needed. Ideally these would also cover teacher educators not directly involved in delivering entrepreneurship education or related learning activity, participants and student teachers.

The aim of the interviews was to 'capture' the aspects of entrepreneurship education that were not directly visible from the institutions websites, in order to get more detailed descriptions of examples of entrepreneurship education implemented by teacher education institutions in the context of initial teacher education.

In particular, the following aspects were explored:

- The specific aims, approaches and pedagogy of the entrepreneurship education activities developed by the institution;
- The learning outcomes (knowledge, skills or attitudes);

³⁴ ORDER FORM No 129, governed by the provisions of Framework Contract No EAC 19/06 signed on 5.12.2006

³⁵ In three cases, the interview could be conducted at the High Level Symposium for Entrepreneurship Education on April 7-8 in Budapest

- Duration and timeframe (i.e. whether the activity is implemented throughout the duration of the programme or at specific times and when the activity was first implemented);
- The target group;
- Outcomes and impact of the activity on students (percentages of students reached, changes of attitudes, enhanced knowledge and skills, translation into teaching, etc.);
- Outcomes and impact on staff (entrepreneurship attitudes or practices amongst the staff and culture - e.g. entrepreneurship champions among the teaching staff, innovative pedagogy for developing an entrepreneurial mindset, creativity, projects with the local community involving student teachers, etc.);
- History and rationale of the activity;
- The impact of the national strategy on the development and implementation of the specific activity;
- Potential for replication of the activity in other institutions.

A separate questionnaire for the telephone interviews was drafted (see Annex 3). The interviews were undertaken by the same study team responsible for carrying out the desk research. Whenever possible, interviews were held in the local language in order to increase the depth and relevance of information gathered.

It was intended to hold the interviews with the heads of department/faculty providing teacher education or with the person responsible for the implementation and/or execution of the activity analysed. In a few cases, contact partners for the specific entrepreneurship education activity were clearly identified. Some institutions were found to provide an overall approach of entrepreneurial learning and teaching that is neither limited to the department of teacher education nor to a particular module. In these cases, it was intended to talk to the dean of the institution.

An interview request was sent to the contact persons by e-mail accompanied by an accreditation letter. Requests for interviews were followed up by phone calls.

In total, 21 institutions responded positively and in 19 cases it could be verified that indeed the institution has set up an activity in the field of entrepreneurship education in initial teacher education.

In the remaining seven cases, case studies could not be conducted for the following reasons:

- The institution decided not to take part in the study (three cases);
- Despite several attempts, no university representative for the activity could be identified or was available for an interview (three cases);
- In conversations with university representatives it was found that the activity does not address students in initial teacher education or is not taken by students in initial teacher education (one case).

Together with a summary of the information gathered for the country overviews, the 21 finalized case studies are presented in Section 6.

3.2.4 Further projects and initiatives

During initial and additional desk research, a number of interesting projects related to entrepreneurship education outside of the direct context of teacher education institutions were identified. These projects are:

- European pilot projects initiated in the context of promoting the teaching of transversal key competences associated with lifelong learning (e.g. AQUEDUCT);
- Projects developed in the context of a national policy and/or initiative which feed into the development of approaches to entrepreneurship education in schools or in teacher education (e.g. E.E.S.I, Austria);
- Regional projects which provide support to institutions that would like to implement forms of entrepreneurship education (e.g. Proleron, Belgium);

- Projects initiated by private stakeholders (e.g. Chambers of Commerce) to promote entrepreneurial learning and enhance entrepreneurial culture in schools (e.g. Entrepreneur's Skills Certificate, Austria);
- Centres for entrepreneurship and/or entrepreneurial learning that are combining research and development (e.g. Centre for Entrepreneurship Education Portugal (CEEP)).

All of these projects might be a useful source for information or might provide impulses to entrepreneurship education in initial teacher education. Especially institutions offering extracurricular activities have often been found collaborating with these projects.

A list of relevant projects is presented in Annex 5. Since the focus of this study was not on projects, this list has to be viewed as a by-product of the research; the list is by no means complete or representative.

4 Entrepreneurship education in teacher education: How common is it and what forms does it take?

The first part of this section presents an overview on the status of the implementation of national strategies for entrepreneurship education and the role of entrepreneurship education within national school curricula. The information is based on reports prepared by countries in 2009 in which they presented their approaches to the implementation of the Key Competences Framework. It has been verified during the desk research phase as well as in discussions with national representatives during the High Level Symposium for Entrepreneurship Education in April 2011.

This overview of national policies on entrepreneurship education is followed by an assessment of the frequency of entrepreneurship education in teacher education in the countries studied. Thereafter, the forms that entrepreneurship education in teacher education takes are presented and the main target groups of these activities are described.

4.1 Context: Entrepreneurship education in national strategies and within national school curricula

In nine out of the ten selected countries, a specific strategy to foster entrepreneurship education is in place, the exception being **Hungary**.

Some of these strategies have a long-standing tradition. In the **UK-Scotland**, for instance, the current strategy named 'Determined to Succeed' is based on a preceding programme launched in the 1990s ('Enterprise Awareness in Teacher Education' programme) and in **Austria**, an 'Enterprise Education Initiative' was launched in 2000. In **Portugal**, a 'National Programme for Entrepreneurship Education' was launched in 2001, but has been put on hold due to the economic crisis. A renewal is currently being discussed.

In other countries, the strategies are closely monitored and regularly updated. In **Norway**, the first 'Strategic Plan for Entrepreneurship in Education: See the Opportunities and Make them Work' was launched in 2004. It was revised in 2006 and linked to a knowledge promotion plan. After an evaluation in 2008, a second 'Strategic Action Plan for Entrepreneurship within Education: Entrepreneurship in Education and Training - from compulsory school to higher education 2009–2014', was launched in September 2009.

In most countries, the strategies are based on a joint initiative of several ministries and national stakeholders, mostly including the Ministry of Education and the Ministry of Economics, plus actors from the business sector. One example of this approach is the 'Entrepreneurial Education Action Plan' of **Belgium-Flanders**. In **Finland**, the elaboration of the national strategy on entrepreneurship education is developed by numerous stakeholders: the Ministry of Employment and the Economy, the Ministry of Agriculture and Forestry, the National Board of Education, the Central Chamber of Commerce, Federation of Finnish Enterprises, Trade Union of Education in Finland (OAJ), and Finnish Enterprise Agency, as well as several higher education institutions. In **Croatia**, a transnational initiative was launched in 2007: the Ministry of Economy, Labour and Entrepreneurship established structured co-operation amongst eight South Eastern European countries³⁶ on lifelong entrepreneurial learning and founded the South East European Centre for Entrepreneurial Learning (SEECEL).

All of the countries studied have implemented entrepreneurship education in some part of the national framework curricula. Most countries implement it as a cross-curricular

³⁶ Albania, Bosnia and Herzegovina, Croatia, Kosovo (under UNSCR 1244 / 99), Macedonia (the Former Yugoslav Republic), Montenegro, Serbia and Turkey. More information on the SEECEL website: <http://www.seecel.hr/default.aspx?id=14>

competence, while in **Austria and Portugal** it is included in topics related to economics and business studies. In Austria, the topic is currently discussed in the context of curriculum development. In **Belgium-Flanders**, learning outcomes related to the transversal key competences of entrepreneurship and initiative-taking are specified. In **Sweden**, despite the comprehensive government strategy to support entrepreneurship education, entrepreneurship is not explicitly mentioned in the national curriculum and in the reviewed concept for teacher education. However, the curricula and syllabi contain wording that indirectly relates to the promotion of knowledge and qualities associated with entrepreneurship.

Table 4.1 gives an overview on the integration of entrepreneurship education within national strategies and national curricula in the 10 countries covered.

Table 4.1 Integration of entrepreneurship education within national strategies and national curricula in the 10 countries covered

| Country | National/Regional strategy for entrepreneurship education | Embedding of Entrepreneurship Education in National Curriculum |
|------------------|---|--|
| Austria | 'Enterprise Education Initiative ' (2000). | Entrepreneurship education is integrated into the curricula of colleges of business administration and business schools. |
| Belgium-Flanders | 'Entrepreneurial Education Action Plan' (2006). | The regional curriculum specifies learning outcomes related to the transversal key competences of entrepreneurship and initiative taking. |
| Croatia | South East European Centre for Entrepreneurial Learning - SEECCEL (2007). | The key competence 'Sense of initiative and entrepreneurship' is included in the National Curriculum Framework. |
| Finland | 'Guidelines for Entrepreneurship Education' (2009) | Entrepreneurship is a key competence in basic and upper secondary curricula. |
| Hungary | ./. | The National Core Curriculum includes the new formulation of the development of initiative taking and entrepreneurship and the teaching of entrepreneurship. |
| Netherlands | 'Action Programme for Entrepreneurship and Education' (2000). | 'Initiative taking and entrepreneurship' are included in the curricula of primary and secondary education. |
| Norway | 'Strategic Action Plan I' in 2004, 'Strategic Action Plan II' in 2009. | 'Initiative taking and entrepreneurship' are included in the Quality Framework and in subject curricula. |
| Sweden | 'Strategy for Entrepreneurship in the Education System' (2009) | The curricula and syllabuses contain wording that indirectly relates to the promotion of knowledge and qualities associated with entrepreneurship. |
| Portugal | National Programme for Entrepreneurship Education (2001). | 'Sense of initiative and entrepreneurship' is included as key competences in curricula of economic and business studies. |
| UK-Scotland | 'Determined to Succeed' (2001/2002); 'Skills for Scotland' (2010). | 'Education for enterprise' is a cross-curricular subject in the 'Curriculum for Excellence Experiences and Outcomes', (curriculum for 3-18 year olds) and in the 'Skills for Scotland' lifelong skills strategy. |

Sources: 2009 National report on the implementation of the Education and Training 2010 work programme, own research

Based on this contextual information it appears that in all countries studied there is some political willingness to implement entrepreneurship education in schools at primary and secondary level. There are clear signs of top down initiatives to implement entrepreneurship education in schools and higher education institutions. Entrepreneurship education is promoted by national policies; curricula and schools (and hence teachers) are expected to develop knowledge, skills and attitudes in this area. Given the explicit definition of entrepreneurship education in the curricula in most countries, it could be expected that entrepreneurship education is also paid attention to in teacher education programmes.

4.2 How frequent is entrepreneurship education in teacher education?

On the whole, 181 institutions and 612 teacher education programmes were screened.

In **Finland**, all teacher education institutions have implemented a form of entrepreneurship education in their teacher education programmes. In three other countries (**Belgium-Flanders, Netherlands and Norway**) a significant number of teacher education institutions that provide activities explicitly focused on entrepreneurship education, have been identified.

In two countries (**Croatia, Hungary**), concrete measures of entrepreneurship education in teacher education are rare, in one country (**Portugal**) no concrete activities directly implemented in teacher education programmes have been found at all.

In **Sweden**, very few initiatives have been found through the initial website screening, although there was evidence of ongoing activity. Many websites were under construction due to an ongoing reform of teacher education. Further research brought to light that the number of activities discovered by the website screening (Table 4.2) does not reflect the actual level of activity.

In **Austria**, evidence was found that several teacher education institutions offer opportunities to engage in entrepreneurship education. However, since the website screening did not allow for a differentiation between general secondary education and VET, further research showed that many of the activities found are directed at VET-teachers. Therefore, for initial teacher education, a lower level of activity than that which is displayed in Table 4.2 should be assumed.

For **UK-Scotland**, the assessment was very difficult since the websites – with one exception - did not provide information on the content of teacher education programmes. This might be due to the fact that requirements on teachers' competences are highly influenced by the national professional standards set out by the General Teaching Council for Scotland (GTC Scotland).³⁷ However, evidence for activities was found in mission statements and general remarks on aims and objectives of teacher education.

Generally, institutions were rated as 'providing entrepreneurship education' if they explicitly provided either of the below:

- Compulsory modules in initial teacher education named 'entrepreneurship training, entrepreneurship education, entrepreneurial thinking';
- Optional modules in initial teacher education clearly linked to entrepreneurship education;
- Optional modules in set up by other faculties (but open to teacher students) clearly linked to entrepreneurship education;
- The core values of entrepreneurship education were clearly and literally present in the mission statement of the institution;
- Core skills, attitudes and knowledge of entrepreneurship education were clearly referred to and taught in a horizontal approach; or

³⁷ The GTCS is a professional body that defines and maintains quality standards of teaching and learning, makes recommendations to the ministries and is responsible for the registration of qualified teachers. More information: <http://www.gtcs.org.uk/home/about-gtcs.aspx>

- The institution was involved in extracurricular activities set up by an external project or programme related to entrepreneurship education.

The following table provides an overview of the number of teacher education institutions explicitly providing entrepreneurship education activities found through the initial website screening.

Table 4.2 Number of teacher education institutions explicitly providing entrepreneurship education activities (based on initial website screening)

| Country | Number of institutions rated as providing entrepreneurship education |
|------------------|--|
| Austria | 5 (out of 19 screened) |
| Belgium-Flanders | 4 (out of 20 screened) |
| Croatia | 1 (out of 6 screened) |
| Finland | 8 (out of 8 screened) |
| Hungary | 2 (out of 24 screened) |
| Netherlands | 8 (out of 25 screened) |
| Norway | 12 (out of 25 screened) |
| Portugal | 0 (out of 24 screened) |
| Sweden | 1 (out of 21 screened) |
| UK-Scotland | 2 (out of 8 screened) |
| TOTAL | 43 (out of 181 screened) |

Source: Own screening of teacher education institutions websites

The findings have been validated and completed by further desk research. It has already been mentioned that for Sweden and Austria, the next step of research brought to light that the website screening showed a slightly distorted picture.

The following picture provides an assessment of **the frequency of entrepreneurship education in initial teacher education** in the countries studied. It has to be emphasized that the intention of the mapping exercise was to identify activities in initial teacher education in general education only. Consequently, other activities such as initiatives targeting teachers in service or initiatives targeting VET-teachers have not been taken into account.

| | |
|--|---|
| Austria: Low level of activity in initial teacher education | Netherlands: Medium level of activity in initial teacher education |
| Belgium-FI: Medium level of activity in initial teacher education | Norway: High level of activity in initial teacher education |
| Croatia: Low level of activity in initial teacher education | Portugal: Low level of activity in initial teacher education |
| Finland: High level of activity in initial teacher education | Sweden: Medium level of activity in initial teacher education |
| Hungary: Low level of activity in initial teacher education | UK-Scotland: Medium level of activity in initial teacher education |

Countries were assessed as having a high level of activity (**green**), if **all or the largest part** of the teacher education institutions screened provides activities concerning teachers' preparation for entrepreneurship education.

Countries were assessed as having a medium level of activity (**yellow**), if **a significant number** of the teacher education institutions screened provides activities concerning teachers' preparation for entrepreneurship education.

Countries were assessed as having a low level of activity (**orange**), if **no or only a small number** of teacher education institutions screened provides activities concerning teachers' preparation for entrepreneurship education.

4.2.1 Results per country

In the following section, the general results and the 28 activities initially selected for in-depth mapping are presented country by country.

A complete list of institutions mapped can be found in Annex 4. This list also gives an overview of the institutions for which the research has brought up evidence for entrepreneurship education in initial teacher training.

Austria

For Austria, 19 institutions and 29 teacher education programmes³⁸ have been screened. In the initial website screening, five institutions were rated as providing entrepreneurship in initial teacher education (cf. Annex 4). Three of them were selected for further research:

- Pedagogical College Vienna provides an elective module named 'Business knowledge for teachers' for Bachelor of Education students aspiring to teach at secondary schools. The list of research projects at this college also lists a study on the evaluation of the impact of basic business knowledge (education) on the acting competence of teachers.
- The University of Innsbruck provides an elective class for future subject specialist teachers in geography and business science which includes a non-scholarly internship, knowledge about business and the labour market.³⁹
- Johannes-Kepler University Linz provides an elective course for future teachers of academic secondary in technical and natural sciences. Additionally, the university has an Institute for Entrepreneurship which ran several projects; among them a Seminar 'Founders in creative sector' which won a DG ENTR award in 2010.⁴⁰ The activities of this institute are open for student teachers, but are not primarily directed at them. In conversations with university representatives it has been discovered that the activities – maybe due to a lack of advertising – are not chosen by student teachers as electives.⁴¹

In four other institutions, although explicit entrepreneurship education activities have not been identified, evidence suggested that entrepreneurship education may have been initiated. The assessment was based on the fact that the institutions refer to the core values of entrepreneurship education in their mission statements or refer to methods and pedagogical approaches which draw on entrepreneurship education.

³⁸ For Austria, different pathways to become a secondary teacher specialized on a combination of different subjects has been counted as one programme. Nevertheless, it has been cross-checked if a certain group of subject specialist teachers (e.g. teachers for economic or social sciences) is especially likely to take part in entrepreneurship education.

³⁹ In Innsbruck, several attempts to identify specific contact persons failed, no interlocutors for interviews could be identified.

⁴⁰ Institut für Unternehmensgründung und Unternehmensentwicklung, <http://www.jku.at/iug/content/e49522/>

⁴¹ Consequently, no Case Study was carried out.

One of these was also selected for further research:

- Pedagogical College Tyrol provides a holistic approach, supporting the individual in its development, independence, and engagement as an 'active citizen'. It also states in its mission statement that entrepreneurship as basic attitude in the educational sector and in shaping their personal life is considered important.⁴²

It seems that in Austria a lot of attention in entrepreneurship education is paid to:

- Training in-service teachers through the Enterprise Education Initiative;⁴³ VET-teachers specialised in trade and business, future subject specialist teachers in geography and business science.

Some universities cooperate with local centres for entrepreneurship but it is not clear to what extent this cooperation concerns teacher education.

Belgium – Flanders

In Belgium (Flanders), 20 institutions and 39 teacher education programmes⁴⁴ have been screened. Three out of four institutions that provide a form of entrepreneurship education in initial teacher education have been selected for further research:

- Group-T-International University College Leuven has set as its objective to educate students on the basis of the 5E-concept (Environmenting, Enterprising, Engineering, Educating, Ensembling) to become teachers with an entrepreneurial spirit, a sense of creativity, and a capacity for change. Entrepreneurship education is pursued as a horizontal approach.
- Provincial College Limburg portrays itself as a student-centred, enterprising and networking institution, independent, modern, oriented at the world of labour and in close connection with the world of business. Entrepreneurship Education is pursued as a horizontal approach. Furthermore, students take part in the development of testing companies and federal funded competitions.
- At Artesis College Antwerpen, entrepreneurship education related methods and activities are included in over half of the teaching programme and all teachers are familiar with the practice. Furthermore, students may participate in extracurricular activities such as business plan competitions etc.

All three institutions are colleges aiming at Bachelor of Education students pursuing a less academic and more practical oriented form of education.

For five other institutions, although entrepreneurship education has not been clearly identified, evidence suggests that entrepreneurship education may have been initiated. This assessment is based on references to the core aims of entrepreneurship education in the mission statements or the use of pedagogy and methods which draw on the pedagogy of entrepreneurship education.

Due to a comprehensive regional strategy (Entrepreneurship Education Action Plan), centres for entrepreneurship and projects offering support to universities were implemented; a project (PROLERON)⁴⁵ addressing teachers - mostly in-service – has been in operation since 2008.

⁴² In Tyrol, several attempts to identify specific contact persons failed, no interlocutors for interviews could be identified.

⁴³ E.E.S.I, Entrepreneurship Education for Innovation in School, <http://www.eesi-impulszentrum.at/index2.php?e.e.si>

⁴⁴ For Belgium, the same approach has been pursued as for Austria.

⁴⁵ Information on the project (in Dutch) can be found at: http://www.ond.vlaanderen.be/dbo/projecten/projecten_proleron.htm

Croatia

The six teacher education institutions and 14 training programmes⁴⁶ screened do not refer to the core values of entrepreneurship education in their mission statement. Only one activity explicitly related to entrepreneurship education in initial teacher education has been identified. At the University of Pula, in the department of preschool and school teaching, within a five-year study programme, one elective course 'Entrepreneurship for non-economists' is offered. Entrepreneurship education is typically provided only at universities that have economics-related study programmes but these do not specifically target future teachers.

In Croatia, the SEECCEL (South East European Centre for Entrepreneurial Learning) was founded in 2008.⁴⁷ SEECCEL's mission is to promote the inclusion of entrepreneurial learning and entrepreneurial literacy in eight pre-accession countries in South East Europe (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro, Serbia and Turkey). A key competence approach and distinct learning outcomes for students on ISCED level 2 have been developed.⁴⁸ SEECCEL also supports lifelong entrepreneurial learning and has developed a specific strategy for teacher education. Previously developed modules will be put through a testing phase starting in the second half of 2011. A comprehensive model of pre-service teacher training will be published afterwards.

Finland

In Finland, eight institutions and 19 training programmes⁴⁹ have been screened. All eight institutions providing teacher education also offer courses in entrepreneurship to future teachers through other university faculties. Five institutions provide entrepreneurship education modules directly through their teacher education unit. Entrepreneurship education was compulsory in three and elective in the other teacher education institutes; in one college it is possible to study for teaching qualifications with specialisation in entrepreneurship education.

Three institutions have been selected for further research

- The University of Turku, which developed the project 'YVI – Virtual learning Environment of Entrepreneurship Education', funded by the Finnish National Board of Education, the Finnish Ministry of Employment and Economy and the Regional Development Centre of Turku.
- The University of Oulu/Kajaani Department of Teacher Education sees entrepreneurship and technology education as a natural part of the operations of the educational institutes and teacher education and offers a compulsory course in entrepreneurship pedagogy. During their studies, students should ponder intensively on the development of their own skills as promoters of making an effort and internal entrepreneurship.
- The University of Jyväskylä, provides an elective module 'Participative citizenship and entrepreneurship' and 'Craft, design and entrepreneurship' in cooperation with HUMAK research centre to aspiring primary teachers.

Seven of the eight institutions providing teacher education take the principles of entrepreneurship education into account by referring to the core values in their mission statement, in the teacher education curricula or in their general advertising materials. They all use training methods that draw on the pedagogy of entrepreneurship education.

⁴⁶ For Croatia, different pathways to become a secondary teacher specialized on a combination of different subjects have been counted as one programme and the existence entrepreneurship education has been cross-checked.

⁴⁷ Website: <http://www.seecel.hr/>

⁴⁸ Entrepreneurial Learning – Key competences. SEECCEL 2011, <http://www.seecel.hr/UserDocs/Images/Documents/Documents%20Section/SEECCEL%20-%20Entrepreneurial%20Learning%20ISCED%20Level%202.pdf>

⁴⁹ For Finland, the differentiated programmes for subject specialists have been screened separately.

Hungary

In Hungary, two of the 24 institutions and 91 training programmes screened have been identified as providing a form of entrepreneurship education within teacher education:

- Budapesti Műszaki és Gazdaságtudományi Egyetem (BME). In this institution, Teachers of Economics (MA) are educated. A specialization on 'entrepreneurial studies' is offered, where aspiring teachers acquire knowledge, skills and attitudes (knowledge of the economy, of the business world and of entrepreneurship, starting and running a business; skills: creativity and innovation; and attitudes: positive attitudes towards business and entrepreneurship, entrepreneurship considered as a natural and positive career choice).⁵⁰
- Corvinus University of Budapest, the Faculty of Social Sciences also provides knowledge of the economy and business world, awareness of and positive attitude towards entrepreneurship, capacity to discover opportunities, cooperation, starting and running a business, and a sense of initiative to aspiring teachers of economics in secondary education (specialized in studies of entrepreneurship).

Eight teacher education institutions refer to creative or student centred approaches in their mission statement. Teacher education programmes in six teacher education institutions refer to the core aims of entrepreneurship, and 6 institutions refer on their website to working methods drawing on the pedagogy of entrepreneurship education.

Netherlands

The screening showed that 8 of the 25 institutions and 49 programmes⁵¹ displayed some sort of entrepreneurship education. Many universities pursue a broad concept and offer a general programme 'Minor in Entrepreneurship' that is open to students of all faculties. The option is however not particularly advertised among student teachers and connections to the practice of teaching are not pointed out; thus not many student teachers see the point in taking this 'Minor'.

Four universities have been selected for further research:

- In the University of Amsterdam, Faculty of Social and Behavioural Sciences, Department of Child Development and Education in Amsterdam, students may take part in extracurricular activities of the Amsterdam Centre for Entrepreneurship during the summer period (student companies, business plan competitions etc.);⁵²
- Zuyd University, which provides a 'Minor in Entrepreneurship' as an additional, facultative module;⁵³
- Avans University of Applied Sciences specifically mentions in its mission statement that teachers need to have an entrepreneurial mindset and thus seems to be an example of a horizontal approach. Furthermore, projects with primary schools are initiated;
- HAN University of Applied Sciences Nijmegen provides a 'Minor in Entrepreneurship' and provides several projects that draw on the pedagogy of entrepreneurship education in its initial teacher education programme (primary level).

The 'Entrepreneurship and Education' scheme launched by the Dutch government in 2007 has set a focus on primary education and the first stage of secondary education. It

⁵⁰ A representative of BME has not been available for an interview.

⁵¹ For the Netherlands, different pathways to become a secondary teacher specialized on a combination of different subjects have been counted as one programme and the existence entrepreneurship education has been cross-checked.

⁵² No interview partner could be identified, who would be able to highlight the cooperation with the Amsterdam Centre for Entrepreneurship regarding teachers.

⁵³ An interview request has been sent to Zuyd University. Zuyd University decided to not take part in the study.

introduced entrepreneurship education as a cross-curricular subject at primary level; supported by the provision of funding for projects and initiatives. Consequently, activities set up at HAN and Avans target student teachers for primary education.

Fourteen teacher education institutions take entrepreneurship education principles into account through reference to core values in their mission statements. For example, a number of universities make references to partner organisations for enterprise or connections to the business world, whilst others focused on their student-focused or innovative activities.

Norway

For Norway, 24 institutions and more than 100 programmes⁵⁴ have been screened. The subject of entrepreneurship education is integrated in several teacher education programmes, as compulsory or elective modules or courses, and the entrepreneurial and innovative approach can be found in more than half of the institutions. References to skills and attitudes relating to entrepreneurship education can be found in programmes for teachers in both primary and secondary education. Four universities provide compulsory modules in entrepreneurship within a teacher study programme.

Four institutions have been selected for further research:

- Bodø University College Compulsory provides a module 'Educational Entrepreneurship' for primary and secondary students.
- Hedmark University College has been involved in developing the Teach & Esprit Handbook (Developing Entrepreneurial Spirit in European Teachers' Training for Vocational Education) and now wants to root entrepreneurship education further in its programmes for teachers. It is an active partner in a local network with the County Governor of Hedmark and the Innovation Centre Hedmark and has publications on 'pedagogical entrepreneurship' in its name;
- Oslo University College provides a compulsory module 'Entrepreneurship' for teachers of Art and Design (BA) in primary and secondary education;
- Sogn og Fjordane University College participates in the 'Rural Entrepreneurship through Action Learning (REAL)' project, that aims at regional development and has set up an intensive collaboration with the local business sector.

Ten teacher education institutions have been found to take the principles of entrepreneurship education into account by referring to the core values in the teacher education curricula or by providing training through methods drawing on the pedagogy of entrepreneurship education.

Portugal

In Portugal, in 4 of the 25 institutions and more than 100 programmes screened⁵⁵, evidence for entrepreneurship education has been found. In those universities or institutes, teacher education programmes emphasise specific outcomes related to entrepreneurship education like a 'mission to prepare students for the global society of the 21st century and transform the students into world citizens, creative minds and entrepreneurs' (University of Madeira) or learning content, like the development of communication skills and leadership competences have been identified.

Nine teacher education institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statements, in the teacher education curricula or in their general advertising materials.

However, concrete examples of modules or programmes of entrepreneurship education in initial teacher education could not be identified. Two activities were found, that seemed to be of relevance for teacher education:

⁵⁴ For Norway, the differentiated programmes for subject specialists have been screened separately.

⁵⁵ For Portugal, the differentiated programmes for subject specialists have been screened separately.

- The University of Madeira takes part in a transnational project named 'Pinokio Project - Action Research on Teacher Education' that develops methods for entrepreneurship education in primary schools.
- At the University of Coimbra, Psychology and Education Sciences, a programme called 'Intervention, Innovation and Entrepreneurship' has been identified. It aims to promote 'social entrepreneurship' and brings interdisciplinary experts together in a 'social incubator'.

Both projects activities do not address students in initial teacher education. However, the results may provide interesting insights for initial teacher education.

Sweden

Twenty-two institutions and more than 100 programmes⁵⁶ have been screened. In seven institutions, evidence was found that suggesting ongoing activities. In one institution, entrepreneurship education was identified as a distinct subject within teacher education:

- In Kristianstad University College – School of Teacher Education, an innovative vision of education is pursued, aiming at creating 'the most employable people in Sweden'. Within teacher education, students can choose between two eligible courses in entrepreneurship: entrepreneurial learning with a focus on sustainable development in the perspective of the Öresund area, and a course in entrepreneurial learning and development 'Creativity and innovation at work'.

In Sweden, teacher education is in the middle of an ongoing reform. Four new professional degrees for teachers will be introduced in 2011; the current qualifications and their learning outcomes are being reviewed. Teacher education websites are under construction. Therefore, the results of the website screening are based on insufficient data and the number of activities found may not reflect the actual level of activity. After further research, two more institutions were selected for more detailed mapping:

- At the University of Umeå, a 'Research Centre for Enterprise Learning' was founded and is connected to the faculty of teacher education.
- At Gävle University College, a horizontal approach is pursued and aims at supporting skills such as sense of initiative and risk-taking.

UK-Scotland

In Scotland, evidence for entrepreneurship education could be found in most of the 8 institutions and 35 programmes⁵⁷ screened. Concrete examples for the implementation of entrepreneurship education were found in two universities:

- In the University of Strathclyde, a module or learning content called 'Enterprise' could be identified in the education of future secondary teachers (Professional Graduate Diploma in Education – PGDE).
- At the University of Aberdeen, courses on 'Enterprise – principles, practice and contexts (15 Credits)' and 'Enterprise thinking (15 Credits)' are offered.⁵⁸

Six teacher education institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statement; in the teacher education curricula or by providing training through methods drawing on the pedagogy of entrepreneurship education.

⁵⁶ For Sweden, the differentiated programmes for subject specialists have been screened separately.

⁵⁷ For Scotland, the differentiated programmes for subject specialists have been screened separately.

⁵⁸ It is not possible to provide detailed description of this example.

4.3 How is the implementation of entrepreneurship education in teacher education structured?

4.3.1 Implementation of activities in teacher education

Four main forms of implementing activities of entrepreneurship education in initial teacher education could be identified:

- Compulsory modules;
- Elective modules;
- Extracurricular activities;
- Horizontal approach.

In most countries, certain trends concerning the implementation of specific forms of entrepreneurship education could be identified.

Modules related to entrepreneurship education that are **compulsory** for all teacher students have only been found in two countries, Norway and Finland. Both countries are at the forefront of entrepreneurship education; initiatives at Higher Education Institutions are supported by well developed national strategies accompanied by funding to support activities in teacher education.

Most other activities found throughout the countries are offered as **elective modules** – meaning that students can choose from a variety of options.

Extracurricular activities often accompany compulsory and/or elective modules. In these cases, they offer opportunities for students to deepen their experiences in the field or to take part in specific projects as part of their practical training. During the desk research, it also became clear that extracurricular activities – in cooperation with external providers from specific projects or centres for entrepreneurship (business plan competitions, one or two-day summer courses, practice companies) might be the first and easiest thing to provide in institutions that cannot spend a great deal of money, are not very experienced with the subject, have no internal capacities and/or experts to take care of the subject, but would like to experiment with the approach.

In five cases, a **horizontal approach** was found; the teacher education institution aims at creating an entrepreneurial culture of teaching and an overall understanding of the teaching profession along the lines of entrepreneurial thinking. Remarkably, three of these institutions were located in Belgium-Flanders. For one of the horizontal approaches found (University of Gävle, Sweden), it should be noted that previously existing compulsory and elective modules cannot be offered anymore since they do not fit with the demands of a current educational reform. Therefore, the initiators try to teach entrepreneurship education by applying innovative and communicative methods to other subjects – meaning that the initiators were forced to transfer the approach to another level.

The following Table 4.3 displays the spread across countries (based on the activities selected for the case studies).

Table 4.3 Main form of entrepreneurship education provided in initial teacher education

| Country | Compulsory modules | Elective modules | Extracurricular Activities | Horizontal Approach |
|------------------|------------------------|--------------------|----------------------------|-----------------------|
| Austria | | Vienna | | |
| Belgium-Flanders | | | | PHL, Group T, Artesis |
| Croatia | | Pula | | |
| Finland | Kajaani, Turku | Jyvaskyla | | |
| Hungary | | | | |
| The Netherlands | | HAN | HAN | Avans |
| Norway | Oslo, Sogn Og Fjordane | Hedmark, Bodø | Bodø, Sogn Og Fjordane | |
| Portugal | | | | |
| Sweden | | Kristianstad, Umea | | Gävle |
| UK-Scotland | | Strathclyde | Strathclyde | |

In the following sections, the specific forms of entrepreneurship education are outlined in greater detail and typical examples are presented.

4.3.2 Compulsory modules

Compulsory modules are an inherent part of the educational pathway and cannot be dropped or exchanged in favour of other learning content. A fixed amount of ECTS credits is allocated to the modules or courses. These credits are needed to finalize the study and register for the final exam.

Example 1: University of Oulu/Kajaani Department of Teacher Education - Course in entrepreneurship pedagogy (Finland)

The teacher education unit in Kajaani has implemented a compulsory course of five ECTS credits in entrepreneurship pedagogy into the teacher education programme for all teacher students, since 2008.

The course is taken at master's level, i.e. towards the end of the five-year long teacher education programme. It is delivered through a combination of class-room theoretical studies, enterprise visits, and a practical project. In class, students attend lectures to familiarise themselves with entrepreneurship education terminology and concepts. Later on, students take part in a visit to an enterprise, where the enterprise tells the teacher education students what kind of skills and abilities they look for in a future employee. The visit is then followed by a discussion among students on how teachers can prepare pupils to gain the skills needed by employers. At the end of the course, students carry out a project, e.g. design a lesson in line with entrepreneurship pedagogy (five ECTS credits).

Example 2: University of Oslo – Module 'Entrepreneurship' for teachers of arts and design (Norway)

Oslo University College provides a bachelor programme to train teachers in art and design (primary and secondary education). A two-day long entrepreneurial camp and a six-week long module called 'Entrepreneurship' are offered and are compulsory for all teacher students in their third year.

One large firm is usually invited to the two-day long entrepreneurial camp (e.g. the gift shop at the Munch Museum, the Norwegian Trekking Association or the Norwegian

Cyclists' Federation). The idea is that students have to come up with a project idea about how to promote the organisations or develop a product in order to get a quick understanding of creative processes, business plans and working with economics. The second phase of the module is an entrepreneurship project, which runs for about six weeks. In the end of the six-week long project all students have to make a Power Point presentation in which they present their project to the whole group of students and make a prototype of their business ideas: either conceptual ideas, or social entrepreneurship ideas.

4.3.3 Elective modules

Elective modules are an inherent part of the training, but the students can choose between several options. A fixed amount of ECTS credits is allocated to the courses or modules. The students need these ECTS credits to finalize their studies and register for the final exam.

Example 1: Pedagogical College Vienna - Module 'Understanding economy – shaping the future: economic competence for teachers' (Austria)

The module aims at the inclusion of basic economic knowledge and competence in the initial training of teachers. It tries to foster the understanding of the correlation between learning and economic requirements, getting to know operational processes in companies, acquiring didactical competence and at creating links between school and the local economy. The students have to develop a project and take part in a 'student business-award competition', where they have to present their idea and a developed business portfolio in front of a panel and be assessed.

The whole module consists of a theoretical part, project work and a one-week internship in a local enterprise. As an elective subject, the module is an integral part of teacher education. It is offered in the second year of studies (fourth semester), at a point during the studies when students have to individually choose key areas of interest. The business module is one of six modules students can choose from. Three ECTS credits can be acquired.

Example 2: University of Strathclyde – Module 'Enterprise in education'

University of Strathclyde has developed a specific optional module named 'Enterprise in education', to enhance the entrepreneurial mindset of future teachers. The module comprises 36 hours of teaching over two years for students enrolled in the Bachelor of Education programme. The first part of the module consists of setting up a business (small project), from which students can reflect about its benefits and in its application in their teaching career. The second part of the module consists of various seminars where experts are invited to share their knowledge and experience about enterprise education and enterprising teachers.

Even if the students do not chose to undertake the module, they attend the informative session about enterprise education at the beginning of the year and thus get at least a general idea of its aims and objectives.

The scope of these elective course components varies greatly. A useful proxy for measuring the scope and breadth of these activities is the volume of credit allocated to such courses or modules. The amount of ECTS credits allocated to elective modules ranges from three points (see examples above) to 30 credits for more comprehensive programmes like the 'Minor in entrepreneurship' in the Netherlands, the side-study option 'entrepreneurship' that is offered by the University of Jyväskylä (Finland) in addition to the above mentioned compulsory module, or the module 'Entrepreneurial pedagogy' offered in Bodø (Norway).

4.3.4 Extracurricular activities

Extracurricular activities are not part of the regular curriculum and the study programme. Some of the activities are completely voluntary; some others deliver extra credits or count for a part of the required practical training.

Example 1: Ondernemers in de Dop (Budding Entrepreneurs) - HAN University of Applied Sciences (Netherlands)

'Budding Entrepreneur' aims at stimulating and developing an entrepreneurial attitude among primary school children. In a pilot project, teacher students have the opportunity to get involved in a project in which children at primary school are invited to set up little test companies to stimulate their entrepreneurial mindset.

Teacher students experience entrepreneurship education and are trained to use their entrepreneurial skills and knowledge for teaching purposes. They have a key role in guiding the learning process of the primary school children and in the development of the teaching materials for entrepreneurship education. The course can be counted as part of the students' practical training.

Example 2: Nordland/ Bodø University – Incubator project (Norway)

Incubator is a project in which five to seven teacher students (including a headmaster) form a group and are 'touring' to provide basic entrepreneurship education to three to four primary schools during the same time period. The aim of the project is to try to develop the schools in the direction of an entrepreneurial organisation. One method that has been frequently used in Norway since the late 1980s is called 'pedagogical enterprises'. Small learning projects directed at school pupils aged 6 – 18 are set up. The aim is to motivate and show children what it is like to have a job or a business. The project counts as part of the teacher students' practical training.

Compulsory and elective modules as well as extracurricular activities tend to take place in the second part of a Bachelor of Education study programme – which, after having finalized some basic modules, gives a student the opportunity to deepen his or her competences and choose subjects that he or she would like to specialize in. Some modules are also offered at the post-graduate level for master's students.

4.3.5 Horizontal approach

In a horizontal approach, teacher education institutions foster the development of skills and attitudes which are central to entrepreneurship education (e.g. sense of initiative, tolerance to failure and creativity), increase students' awareness and understanding of entrepreneurship education, its aims and working methods and equip student teachers with the specific skills and knowledge to implement the pedagogy of entrepreneurship education throughout the whole study programme. Working methods from entrepreneurship education are applied in various subjects; the approach is not limited to one single module or course.

This approach aims at creating a specific culture of teaching and an overall understanding of the teaching profession along the lines of entrepreneurial thinking.

Example 1: Horizontal approach - Group T Leuven Educational College (Belgium)

From its start in 1995/1996, Group T – Leuven Education College adapted an entrepreneurial spirit. It was the first teacher education institution in Flanders that initiated project work as an integral part of teachers' studies in 1998. In 2002 – again as the first teacher education institution in Flanders - it adapted a 'portfolio-concept'; which makes it an integral part of a teachers' education to reflect on his or her personal vision and mission and develop their professional portfolio.

Teacher students are required to work in projects from the beginning and throughout their complete study programme.

Example 2: Horizontal approach - Avans University of Applied Sciences (The Netherlands)

The university is committed to entrepreneurship education and has implemented several methods, activities and projects in their curriculum which stimulate the entrepreneurial mindset of teacher students. It can vary from a short assignment whereas the students need to organise a one-hour presentation on a given topic, to a one-day seminar on language and maths or a project that needs to be carried out throughout the academic year. Another example includes a global show-case exhibition which is organised by the students.

A special form of implementation has been found at the Hungarian University of Corvinus. Here, a **comprehensive programme of becoming a teacher for entrepreneurial studies** is offered.

University of Corvinus: MA programme Teacher of Economics: Entrepreneurial Studies (Hungary)

At the University of Corvinus, the MA programme 'Entrepreneurial studies' is carried out at the Department for Economics, and at the Department for Social Sciences. Throughout the Department of Economics, there is a focus on how to start up small and medium sized enterprises (SMEs), while the activities at the Department of Social Sciences provides tools for learning how to provide children with a flexible and open-minded thinking, focusing more on pedagogy and change of attitudes.

The MA programme 'Teacher of economics: entrepreneurial studies' is open for anyone with a BA degree in economics, and they are not required to have a teacher degree before entering the course. The aim is to provide students with the possibility to become teachers of economics, once they have received a BA degree in economics.

4.4 Which levels of teacher education are addressed?

Advanced countries like Norway and Finland offer courses and modules for all levels of teacher education (primary and secondary education) focused on in this study. In Austria and Hungary, mainly teacher students for business and economics (in VET and/or as subject specialist in secondary education) are addressed. Generally, teacher students in primary and/or general secondary education are similarly addressed; no predominance of activities has been found. The interviews indicate that, once a teacher education institution has decided to put entrepreneurship education on the agenda, they do not single out one target group, but offer elements of entrepreneurship education to all groups of teacher students that are trained in the institution. Some preferences may also be due to specific government funding in a certain area – for instance primary education in the Netherlands.

Table 4.4 below shows which groups of teachers were found to be mainly addressed in the countries selected (based on website screening, desk research and interviews).

Table 4.4 Target groups of entrepreneurship education activities

| Country | Teacher students Primary Education | Teacher students General Secondary Education | Teacher students Secondary Education - Subject Specialists |
|-------------|---------------------------------------|--|--|
| Austria | | x | X |
| Belgium-FI | X | X | X |
| Croatia | X | | |
| Finland | X | X | X |
| Hungary | | | X |
| Netherlands | X | X | X |

| Country | Teacher students Primary Education | Teacher students General Secondary Education | Teacher students Secondary Education - Subject Specialists |
|-------------|--|--|--|
| Norway | X | X | X |
| Portugal | | | |
| Sweden | X | X | X |
| UK-Scotland | x | x | |

Source: Own analysis

As already stated, teachers in service are addressed by all countries. As a general observation, based on the data collected during the interviews and the desk research, it seems that the main target group of measures taken by countries to promote knowledge skills and attitudes related to entrepreneurship education, are actually teachers in service. Many projects offered by centres for entrepreneurship, external pilot projects, university research centres, etc. address this target group. Measures for initial teacher education seem to range second behind the target group of active teachers.

It is possible to speculate on the reasons why more activities concentrate on in-service teachers. The following aspects could be influencing this choice:

- They constitute a numeric majority;
- The effects of training for this group can be more immediate because these teachers are already practicing – if the activity has strong impact. On the other hand, these teachers have already developed routines of teaching which may be more difficult to change than the practice of aspiring teachers;
- Teacher education institutions have strong autonomy in defining the content of teacher education programmes. It may be easier for governments to provide grants or project funding for in-service teachers' training than to support change within teacher education institutions.

Interview partners in some countries that pursue a comprehensive strategy and aim at a change in the 'culture of teaching' and a specific mindset of teachers (Belgium-Flanders, Finland, Netherlands, Norway and Sweden), mentioned that they also have identified teacher trainers as an important target group.

5 Implications

This section provides an overview on the observations made as to the impacts of entrepreneurship education. At first, statements made by the interview partners as to the impact on teacher students are summarized. This is followed by remarks on the impact of entrepreneurship education on innovation in teaching methodology and the necessity of cooperation with the (local) business community.

The final section discusses success factors and obstacles in mainstreaming entrepreneurship education in teacher education, with special regard to the time factor and the necessary paradigm shift in a teacher's role. It also gives an overview on the key strengths and weaknesses of the different types of entrepreneurship education provided.

5.1 Main observations

5.1.1 Outreach to and impact on teacher students

Interview partners in all countries stated that initiators should not expect an immediate interest in entrepreneurship education among teacher students. Since students in most cases are not familiar with the concept, the initiatives should be given time to grow. A certain amount of internal marketing is necessary to introduce the subject and to convince students of its aims and benefits.

Students seem to need an 'eye-opener' to grasp how entrepreneurship and teaching actually fit together. Therefore, even if the modules are elective, some institutions provide basic information in compulsory parts of the study programme. At the **University of Strathclyde (Scotland)**, for instance, all teacher students have to attend one compulsory informative session about entrepreneurship education held in the beginning of each year. During this session, an expert on the subject is invited to give an introductory lecture and explain what it means to be an enterprising teacher. So even if the students do not choose to undertake the module, they are informed about the subject.

The compulsory modules found have been received positively by students, even if those were reluctant at the start. For instance, for the compulsory module 'Entrepreneurship' for teachers of arts and design (**Oslo University College, Norway**), internal monitoring has shown that students, although initially they did not fully understand the point of studying entrepreneurship, came to understand the importance of the subject after finalising the module. Many of them even became very enthusiastic about the topics covered.

Representatives of the Finnish activities at **University of Jyväskylä** similarly reported that a slowly changing attitude towards entrepreneurship can be clearly perceived through monitoring of opinions before and after the courses. The initially mainly negative attitude changed during the courses, as students gained a better understanding of what the concept means, and how it is relevant for teachers. At **Corvinus University (Hungary)** the outcomes of the entrepreneurship study programme have also been monitored. It has been observed that students gain increased self-confidence and their motivation to learn and explore possibilities rises together with their creativity. They also show a more positive attitude towards change and become more open-minded in general.

Many interview partners reported that aspiring teachers do not necessarily associate 'entrepreneurship' with the professional pathway they chose or with the professional culture as they perceive it. If provided with options, teacher students have a tendency to select other subjects. One example for this tendency is the **minor-concept in the Netherlands**. For the elective module 'Understanding Economy' offered by **Pedagogical College Vienna (Austria)**, the interview partner also stated that subjects like 'leisure education' are more popular among teacher students. However, the

Viennese entrepreneurship module offers a capacity for 20-25 students each year and since it has been introduced in 2007, it has always been fully booked.

PC Vienna also offers interesting observations about the group of students who choose the subject; one third of the students taking the module are children of entrepreneurs and another quite large percentage consists of experienced professionals, who either worked before they decided to study or work while studying. What can be learned from this observation is that efforts should be taken to avoid getting into a circle of preaching to the already converted. The activities clearly need 'marketing'. Furthermore, the barriers for attending should be low. For instance, in **Kristianstad University (Sweden)**, an elective course initially was offered as a summer course, during vacation time. When the course could not start as planned because of an insufficient number of applicants, the initiators decided to move it to a more attractive time slot.

Word-of-mouth recommendations among students are also an important factor when it comes to improving the rate of participants in entrepreneurship education activities. For instance, at **University of Pula (Croatia)** it has been stated that the positive feedback of students and word of mouth helped to increase the number of participants to the entrepreneurship course significantly - from two students in 2009 to 20 students in 2010.

Those institutions that have been identified as having adopted a horizontal approach, label themselves as an innovative and enterprising institution (e.g. 'The Laptop University', **Pedagogical College Limburg** and 'The Art of teaching', **Group T Leuven Educational College**⁵⁹). They advertise this approach very distinctively as a sort of corporate identity or brand on their institution's website, hoping to attract those students that are looking for an innovative and creative approach to teaching from the outset. Therefore, no problem of acceptance has been reported in these institutions.

5.1.2 Innovation in teaching methodology

In Section 2, it has been stated that the successful implementation of entrepreneurship education highly depends on the pedagogies used in the classroom. Entrepreneurship education requires that an emphasis should be put on pedagogies that allow students to experience and feel the concept. At the same time, the learning process should be flexible, interactive and based on multidimensional knowledge development. Mistakes should be regarded as a part of the learning process.⁶⁰

With regard to the pedagogical methods, Seikkula-Leino (2007) has identified several pedagogical methods for entrepreneurship education. These are, *inter alia*, co-operative learning, problem-based learning, group and peer work, project work, learning by doing, pedagogical drama and learning diaries as well as twin classes, mini-companies, study tours, field visits and inviting visitors to school.

It has further been outlined in Section 2, that teachers familiar with the concept primarily use the following methods:

- Discussions in the classroom (talking about entrepreneurship);
- Facilitating students' projects;
- Study tours or company visitors;
- Working in pairs, group work, cooperative methods;
- Learning by doing, real world simulation and creative problem solving techniques.⁶¹

An overview on the methodology applied throughout the activities mapped shows similar results. Activating methods like learning by doing, group work and project work are preferred and mostly offered in a combination with theoretical units.

⁵⁹ See website of Group T Leuven Educational College: http://www.groept.be/www/over_groep_t/group_t_-_leuven_universi/leuven-education-college-1/, or PHL Limburg: <http://www.phl.be/> (in Dutch language)

⁶⁰ Gibb, 2005, see page 15.

⁶¹ Seikkula-Leino, 2007, see page 16.

Table 5.1 provides an overview on the favourite methods applied.

Table 5.1 Innovative methodology applied by selection of activities

| Method | Applied in x of 21 examples |
|---|-----------------------------|
| Learning by doing | 21/21 |
| Project work | 15/21 |
| Group work | 8/21 |
| Mini companies / virtual companies / business plan competitions | 7/21 |
| Field trips / internships in companies | 6/21 |
| Visits from outside experts to school | 6/21 |
| Pedagogical drama and learning diaries / role plays | 2/21 |
| Reflection groups | 2/21 |

Three main forms of project work have been found:

- Students are asked to develop ideas for a concrete business;
- Students are asked to develop and organise projects for a school or university (e.g. conferences, specific learning activities, teaching lessons, field trips, etc.),
- Students are asked to conduct projects in internship schools as part of their practical training.

In group work sessions (in distinction to projects, which can also take the form of a group activity), students are typically asked to work on theoretical learning content, and as a result, give a presentation of a subject they explored or foster a discussion, etc.

Fields trips or visits from external experts or business representatives are also quite common. Methods like learning diaries or reflection groups are rather rare; institutions that apply these forms mostly aim at an in-depth reflection of the teacher role and at developing the students own 'vision' and understanding of this role.

5.1.3 Cooperation with (local) business community

A welcome side effect of the introduction of entrepreneurship education activities seems to be the improvement of the institutions' cooperation with the local business community. Some projects have even been set up in the context of regional development. The REAL project initiated at **Sogn og Fjordane University College in Norway** is based on the idea of school-based community development corporations. The objective is to identify opportunities and needs in the local area, create businesses and develop ideas to serve these markets.⁶²

HAN University of Applied Sciences in the Netherlands, together with several local entrepreneurs, participate in a 'learning network' led by FabLab Arnhem, an educational innovation centre, aiming at inspiring the entrepreneurial mind of students, teacher students and teaching staff and developing impulses for the regional economy.

Moreover, the entrepreneurship education activities described include several tasks that could only be performed in cooperation with business representatives:

- Organization of field trips to local enterprises;
- Organization of a supply of places for business internships for teacher students;
- Inviting business representatives to come to the institution and discuss with students or give lectures;

⁶² Ibid.

- Inviting business representatives to support students' projects or mentor their activities; and
- Organization of concrete projects to be organized in cooperation with local companies.

If centres for entrepreneurship have been founded in a region, these may seem to be the logical contact partners. Some examples of cooperation have been found; **Kristianstad University** in Sweden cooperates with 'The Centre for Public Entrepreneurship', a resource centre for people and organizations that have a community development idea. The centre supports social entrepreneurial ventures in the whole county by offering mentoring and advice on funding, organization, project management, communication and access to multi-sectoral networks.

In general, institutions reported that they benefitted enormously from their improved network with the local business community. Once the contact is established, it is easier to get business representatives to participate in university events, cooperate in offering internship and job opportunities for alumni (also from other faculties), etc. Several follow-up activities have been reported. **Pedagogical College Vienna**, for instance, has set up cooperation with a local women's business association. Successful women in business give evening lectures or participate in discussion panels on several subjects. **Oslo University College** has initiated a mentoring programme for its arts and design teacher students with an award winning design bureau from the region. Company representatives accompany the students and share their experiences in starting a business and solving the problems arising in this process.

5.2 Success factors and obstacles in mainstreaming entrepreneurship education in teacher education

5.2.1 Time factor

In the interviews, it has repeatedly been stated that the introduction of entrepreneurship education in a teacher education institution takes time and needs a significant amount of persuasive power and persistence. Attitudes and professional and/or institutional cultures do not change overnight. The development of an entrepreneurial mindset for teachers is an ambitious goal - not only as far as students are concerned; the process of convincing colleagues and heads of faculty or institutions has been described as every bit as demanding.

National strategies and additional government resources are indispensable to support the work of initiators of bottom-up strategies. However, interview partners from Norway reported that even a comprehensive approach accompanied by a sound support strategy like the Norwegian one - developed together with practitioners and a maximum of possible entrenchment in the institutions – takes its time until it has been disseminated and is accepted in the field.

5.2.2 Professional attitude – role of the teacher

Initiators of activities, who are at the forefront of entrepreneurship education, aim for nothing less than a comprehensive (re-)definition of the teacher's role. The Commission Staff Working Paper 'Schools for the 21st century' from 2007 states that 'it is teachers who mediate between a rapidly evolving world and the pupils who are about to enter it. The demands placed upon teachers are increasing: They (...) need to respond to the demand for individualised learning and to assist pupils to become autonomous life-long learners.'⁶³

⁶³ Commission of the European Communities - Commission Staff Working Paper: Schools for the 21st century. SEC(2007)1009, Brussels, 2007. Available online: http://ec.europa.eu/education/school21/consultdoc_en.pdf

Therefore, teachers should see themselves not as lecturers, but as leaders of the learners learning processes, as facilitators, organizers and motivators who foster the development of creativity, new ideas and innovation and enable personal growth and entrepreneurial attitudes. To help student teachers to acquire such an understanding of their future profession, institutions need teacher trainers who are able to embody this understanding of teaching and set an inspiring example. Representatives of the **University of Hedmark** state that teacher trainers should also be seen as an important target group. To get to this point, they also need further training and support.

When the new approach to train future teachers in arts and craft at **Oslo University** was introduced, teachers in teacher education were very reluctant to take up the teaching of entrepreneurship, as they did not feel that they had the qualifications to deal with the subject. With the support of an external organisation ('Norwegian Junior Achievement Young Enterprise')⁶⁴, seminars of varying length about entrepreneurship within teacher education have been provided and four out of thirty-five teachers at the Department for Art and Design, specialised on the subject.

Thus, it can be said that the introduction of entrepreneurship education initiatives should be accompanied by support measures for teacher staff within the institutions. But, after all, the results are encouraging. Teaching staff that participated in the process reports indicated that they also benefitted from the new approach. At **HAN University (Netherlands)**, teacher trainers appreciated that entrepreneurship education gives them more room and freedom for innovation. New ideas and methods can be tested and they are allowed to take risks and fail or make mistakes. This results in a high degree of dynamics. Moreover, teachers get more opportunity to cooperate with their teacher students. As a result, the dynamics between student and teacher changed and they became more of a team.

5.2.3 Key strengths and weaknesses of types of entrepreneurship education found

Taking into account the observations mentioned in the preceding sections, the key strengths and weaknesses of the four main types of entrepreneurship education activities identified can be summarized as follows.

Table 5.2 Key strengths and weaknesses of the types of entrepreneurship education

| Type of Activity | Strengths | Weaknesses |
|--------------------|--|--|
| Compulsory Modules | <ul style="list-style-type: none"> ▪ All students can be reached – evaluations show that sceptical students can be convinced of the benefits of entrepreneurship education by experiencing it ▪ Chances to establish a sustainable network with local business community ▪ Fair chance to make a long-term impact on teaching culture | <ul style="list-style-type: none"> ▪ Due to a fixed amount of ECTS credits and study subjects, the introduction of a new subject goes to the expenses of other subjects ▪ Long and extensive process of implementation and internal discourse required ▪ Support from head of university/faculty required |

⁶⁴ Information about the organisation in English is available at:
http://english.ue.no/pls/apex32/f?p=16000:1002:1698531758090826:::1002:P1002_HID_ID:6405

| Type of Activity | Strengths | Weaknesses |
|----------------------------|---|--|
| Elective Modules | <ul style="list-style-type: none"> ▪ Intensive work in small groups of interested students ▪ Chance to establish networks with the local business community ▪ Fair chance to make a long-term impact on teaching culture | <ul style="list-style-type: none"> ▪ Risk of 'preaching to the already converted' – students in general are less prone to choose activities ▪ Risk of creating an exclusive circle of in-house experts ▪ Chances to reach long-term impact on teaching culture are slim ▪ Extensive process of institutional implementation required ▪ Support from head of university/faculty required |
| Extracurricular activities | <ul style="list-style-type: none"> ▪ Can be organised by one engaged person or a small group of staff ▪ Good opportunity to form first experiences ▪ Good opportunity to test acceptance, benefits and innovative methods (e.g. if members of faculty are not accepting) ▪ If projects and external providers are involved, the development and execution costs for institution are low ▪ No extensive process of implementation | <ul style="list-style-type: none"> ▪ Singular action, no sustainability ▪ No chance to establish ongoing external networks with the business community ▪ Students might have high barriers to access, especially if it is voluntary activity (summer school, etc.) and no ECTS points are granted ▪ Very slight chance of long-term impact on teaching culture |
| Horizontal approach | <ul style="list-style-type: none"> ▪ Aims at attitudes, to a lesser extent at (business) skills and knowledge ▪ Supports the development of the whole university (learning institution) ▪ Long-term impact on teaching culture in institutions | <ul style="list-style-type: none"> ▪ Distinction to 'excellent teaching' in general might be unclear – not necessarily obvious why the different actions connected count as 'entrepreneurship education' ▪ Changes in the teaching culture at the whole university is a required precondition for the introduction of a new approach – extensive training of staff is required |

5.2.4 Closing remarks

Implementing modules and courses of entrepreneurship education in initial teacher education seems to be a task that can hardly be realised on a short term basis. Teacher education institutions and their staff need to go through a learning process. The length and intensity of the learning process required depends on the type of activity that is potentially implemented. Four main types of ongoing activities in initial teacher education have been identified. Implementing a horizontal approach surely is the type of activity that requires the most extensive learning process from the institution and its staff, while extracurricular activities represent the easiest way to start with some type of action and test the outcomes.

Many initiators succeeded in implementing a new activity because they were able to get the support of the dean of the university or the head of the faculty at some point. In this process, bottom-up initiatives can benefit enormously from the support provided by external initiatives and from additional resources connected to government strategies and action plans. However, the success of government strategies also depends on the commitment of individuals within the institutions, willing to take up the ideas and transfer them into concrete activities.

'Invisible walls between educational institutions and the outside world' have been mentioned. Both students and the institution can benefit enormously by overcoming those barriers by enhancing cooperation with enterprises and business representatives.

Finally, the mapping 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 be ensured that teacher students receive enough information on what entrepreneurship education means and how they can benefit from the associated methods. Experience shows that, once it has been established, the concept and the innovative methods associated with entrepreneurship education gain popularity very quickly.

6 Country Reports and Case Studies

Austria

Summary

In Austria, entrepreneurship education as a key competence is not included in the national curriculum, but is currently discussed as a matter of curricula development.

Entrepreneurship education initiatives have been launched since the beginning of the century, but were mainly addressed at teachers in vocational education and training (VET) – which indeed concerns the majority of Austrian students in secondary education (80%). As a result, entrepreneurship education is included in most VET-related teacher education programmes and in 'geography and economics', a subject which is taught in general secondary education as well as in VET. At four out of five universities providing the subject of 'geography and economics', entrepreneurship education can be studied in elective modules.

Teachers in general education are trained in pedagogical colleges and universities. Pedagogical College Vienna provides an elective module 'Business knowledge for teachers' for Bachelor of Education students aspiring to teach at general secondary schools. This initiative is presented in more detail later on.

Austria

Enterprise education initiative launched in 2000 – mainly impacts on VET teachers. Single initiatives for teachers in general education.

Case study:

Pedagogical College Vienna

Background information about teacher education in Austria

Austria is a federal state comprising nine provinces ('Länder'). Regarding education, Austria has a casuistic system, meaning that the distribution of responsibilities among different bodies and entities in education can vary from case to case. Matters of education tend to be heavily disputed among political decision-makers.⁶⁵

The Austrian Federal Constitution determines that legislation and execution concerning universities and higher education are a federal matter, which means the 'Länder' have a certain degree of independence in working out regulations and policies. Responsibilities for legislation and implementation in school education are split between federal and provincial governments.⁶⁶

General school teachers (primary, secondary general, special and pre-vocational school) are educated at university colleges of teacher education (public and private) that end with a Bachelor of Education (six semesters, 180 ECTS points). Teachers at academic secondary schools must complete at least four and a half years of university studies that end with a diploma.

Entrepreneurship education within the national education strategy

In November 2000, the 'Enterprises-Education' initiative was launched at the Federal Ministry for Education, Science and Culture (BMBWK). The Education Ministry and representatives of industry jointly signed a declaration of intent with the objective of promoting and strengthening co-operation between educational institutions and business organisations. In the framework of the initiative, which is of great importance for education policies, it is intended to take steps leading to an intensification of business-oriented education and to the promotion of entrepreneurship in the primary,

⁶⁵ EURYDICE, National system overviews on education systems in Europe and ongoing reforms, 2010 Edition. European Commission 2010. Available online:

http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_AT_EN.pdf

⁶⁶ EURYDICE, Structures of education and training systems in Europe. Austria 2009/10. Prepared by the Austrian EURYDICE information unit with the support of Mag. A. Elisabeth Repper-Braun. Available online:

http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_AT_EN.pdf

secondary and tertiary sectors⁶⁷ - directed towards teacher students in technical and vocational education.

In Austria, ongoing reforms are undertaken regarding the policy initiatives related to the European Education and Training (ET 2020) strategic framework. Regarding the strategic goal of 'enhancing creativity and innovation, including entrepreneurship, at all

Reforms discussed with regard to ET 2020 key competences

- Development of competence-driven curriculum
- Development of cross-curricular activities with embedded aspects of entrepreneurship education
- Lowering maximum class sizes
- Explore the potential of new media in teaching

levels of education and training', Austria has set up a project to group the principles of instruction into three to six core areas and link them to the EU transversal key competences. The objective which has emerged from the debate so far, is a competence-driven curriculum, for which the grouping of the principles of instruction, their linking to skills, and their contextualisation with methodology, educational standards, and performance assessment, is required as groundwork.⁶⁸ This leads to the development of cross-curricular activities and subjects in which aspects of entrepreneurship education are embedded.

Concerning an innovation-friendly climate, Austria concentrates on the lowering of maximum class sizes and on the joint further development of teaching practice at Austria's schools. Further awareness is raised on the potential of new media (e.g. learning platforms) for teaching.⁶⁹

The E.E.S.I. (Entrepreneurship Education for Innovation at School)⁷⁰ initiative develops projects for in-service teachers, mainly in commercial academies and commercial schools. The Austrian Chamber of Commerce developed an 'Entrepreneur's Skills Certificate',⁷¹ which is designed as an additional qualification for students in general education and VET. Teachers who want to teach this module need a special license which can be acquired by completing a course offered by the Chamber of Commerce. The course can also be integrated into initial teacher education.

Implementation of entrepreneurship education in teacher education

The efforts to implement entrepreneurship education for VET teachers and other subjects are mirrored in the programmes of teacher education institutions. For aspiring teachers in general education, only single initiatives are on offer.

Pedagogical College Vienna provides an elective module 'Business knowledge for teachers' for Bachelor of Education students aspiring to teach at secondary schools. The list of research projects of this college also lists a study on the evaluation of the impact of basic business knowledge (education) on the acting competence of teachers.

The University of Innsbruck provides an elective class 'School - society, economy and internationality' for aspiring general secondary teachers, together with field trips to institutions and enterprises.⁷² Johannes-Kepler

Projects and initiatives:

E.E.S.I. (Entrepreneurship Education for Innovation at School)

'Entrepreneur's Skills Certificate' developed by the Austrian Chamber of Commerce

⁶⁷ A report on the ENTERPRISE EDUCATION SYSTEM IN AUSTRIA, Mag. Christine Stampfl, lbw – Institut für Bildungsforschung der Wirtschaft, p. 7-8

⁶⁸ EURYDICE, Systems Overview, p. 13/15

⁶⁹ Ibid.

⁷⁰ <http://www.eesi-impulszentrum.at/index2.php?e.e.si>

⁷¹ <http://www.unternehmerfuhrerschein.at/Content.Node/module/Information-on-the-modules.en.html>

⁷² It was not possible to identify a contact partner to participate in an interview to discuss this activity. As such, it was not possible to include this institution in the study.

University Linz provides an elective course for future teachers academic secondary in technical and natural sciences. Additionally, the university has an Institute for Entrepreneurship which runs several projects; among them a seminar 'Founders in the creative sector' (the project won a DG ENTR award in 2010). The activities of the institute are however, not directed primarily at teachers. In conversations with university representatives it has been discovered that the activities – maybe due to a lack of advertising – are not chosen by teacher students as electives.⁷³ Consequently, no case study has been conducted.

Six teacher education institutions refer to the core values of entrepreneurship education in their mission statement or refer to methods and pedagogical approaches which draw on entrepreneurship education (please consult annex 4 for more details).

Website screening results:

Three institutions providing teacher education offer elective courses in entrepreneurship.

Six institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statement, or refer to methods and pedagogical approaches which draw on entrepreneurship education.

One of these, Pedagogical College Tyrol, had also been selected for further research. The college reports on its website that it provides a holistic approach, supporting the individual in its development, independence, and engagement as an 'active citizen'. It also supports entrepreneurship as a basic attitude in the educational sector and in shaping personal life (citation from mission statement).⁷⁴

⁷³ Institut fuer Unternehmensgruendung und Unternehmensentwicklung,
<http://www.jku.at/iug/content/e49522/>

⁷⁴ It was not possible to identify a contact partner to participate in an interview to discuss this activity. As such, it was not possible to include this institution in the study.

Pedagogical College Vienna

Facts about the activity⁷⁵

The aim of the module is to include basic economic knowledge and competence in the initial training of teachers. It includes basic business knowledge and competence (foster the understanding of the correlation between learning and economic requirements, getting to know operational processes in companies, acquiring didactical competence) and at creating links between education and industry. As to the methods, in the context of entrepreneurship education, the students have to develop a project and take part in a 'student business-award competition', where they have to present their idea and a business portfolio to a panel for assessment.

The module as a whole consists of a theoretical part, project work and a one-week internship in a local enterprise. The internship is organised in cooperation with the Vienna Economic Chamber and several local business partners (mostly SMEs) that offer internship opportunities to teacher students.⁷⁶

As an elective subject, the module is an integral part of teacher education. It is offered in the second year of studies (fourth semester), at a point during the studies when students have to individually choose key areas of interest. The business module is one of six modules students can choose from. In total three ECTS points are allocated to the successful finalisation of the module.

Focus:

- Elective module 'Understanding economy – shaping the future: Economic competence for teachers' (three ECTS credits)
- Aims mainly at business skills and knowledge
- Students have to develop a project and take part in a business plan competition

Outcome / impact of the activity

This activity is expected to achieve a basic economic business competence for future teachers and a better understanding of the world of work. The module aims at:

- The development of students' own entrepreneurial potential;
- The development of a positive culture towards risk-taking and learning from mistakes;
- Encouraging students' ability to pass on business-related attitudes, skills and knowledge.

The module can be booked by 20-25 students each year and since it has been introduced in 2007, it has always been fully prescribed. However, modules and subjects like 'leisure education' are more popular among teacher students.

Key impact:

- Observation that students can be convinced in the process
- Improvement of cooperation and relation to local business community

About one third of the students who choose this module are children of entrepreneurs. Additionally, a big percentage of students are experienced professionals who worked either before they decided to study or work while studying. For other teacher students, the notion of entrepreneurship is something they did not associate with the professional pathway they chose or which does not

belong to professional culture as they perceive it.

⁷⁵ Based on an Interview with Dr. Margit Heissenberger, Director of Institute for Research, Innovation and School development, conducted by GHK, 14 April 2011.

⁷⁶ http://www.biwi.at/aktuell/PH_Praktikumsportfolio_Unternehmer.pdf

According to the initiators, this risk of preaching to the already converted can only be overcome by implementing compulsory modules or by embedding the module in a broader context; at the moment it is an isolated item within a curriculum that furthermore does not address economic issues.

However, the implementation of the module has improved the network between the university college and local business representatives. The latter welcomed the initiative firmly and have repeatedly emphasized the importance of enhanced business knowledge for teachers, especially in regards to the preparation of school leavers at the age of 14-16 for the dual system of VET in Austria.

This target group is reported to be decreasingly well equipped with the necessary skills and competences required to successfully complete a three-year VET programme. Business representatives hope that teachers better connected to the world of work will be better equipped to help students achieve the necessary skills, knowledge and attitudes. Therefore, a high willingness among business representatives to pass on information about the module has been observed.

Context and history of the activity

The module was introduced in 2007 in cooperation with the Vienna Economic Chamber. The activity described here is linked to a personal initiative rather than to a specific policy. In this case, the initiative was successful because the initiators were able to connect to a policy reform taking place at the time.

Lessons learnt

New learning content cannot simply be added to the total workload for students. If a new compulsory module 'entrepreneurship' shall be introduced, the workload of other modules (pedagogical psychology, history of education, etc.) has to be cut down.

Individual initiators of activities often experience difficulties in identifying partners to support entrepreneurship education. Support from European and national level (implementation in national curriculum) is very welcome to innovators at local and institutional level and necessary to support their activities and add weight to their claims.

Success factors:

Personal initiative – used chances offered by national policy pressure and structural reform

Lessons learnt:

- Elective modules bear risks of preaching to the already converted
- Introducing new learning content happens at the expense of old learning content

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Belgium-Flanders

Summary

Belgium is a federal state, where education is a matter of the language communities. The Flemish Community has far-reaching autonomy in implementing educational strategies and guidelines. No national strategy regarding the implementation of entrepreneurship education in initial teacher education is in place, but both the French-speaking and the Dutch speaking community have implemented strategies on regional level.

Belgium-Flanders, 2006:

- 'Entrepreneurial Education Action Plan' (2006)
- Clear tendency of implementing entrepreneurship education in primary and general secondary education than in academic secondary education
- Several universities promote themselves as having an entrepreneurial approach to education

Case studies:

Group T-International University College Leuven
Provincial College Leuven
Artesis College Antwerpen

In Flanders, a joint 'Entrepreneurial Education Action Plan' was approved in 2006 by several federal ministries, including the Ministry of Education, and actors from the business sector. In relation to this plan, several initiatives have been developed and aim to promote entrepreneurship among students. These initiatives also provide support for teachers willing to include entrepreneurship education in the curricula or in extracurricular activities.

The activities of three institutions are presented in more detail. **Group-T-International University College Leuven** pursues a horizontal approach and has set its objective to educate students to become teachers with an entrepreneurial spirit, a sense of creativity, and a capacity for

change. **Provincial College Limburg** portrays itself as a student-centred, enterprising and networking institution, independent, modern, oriented at world of labour and in close connection with the world of business. Entrepreneurship education is also pursued here as a horizontal approach. At **Artesis College Antwerpen**, entrepreneurship education related methods and activities are included in over half of the teaching programmes and all teachers are familiar with the practice.

Background information about teacher education in Belgium-Flanders

Belgium as a federal state is composed of three communities and three regions. The three communities govern the three different language communities living in Belgium – the Dutch (Flemish), the French and the German-speaking Community.⁷⁷ Education – from nursery education to higher education - is under the responsibility of the communities. Consequently, all three communities have their own educational systems.

The education policy in Flanders relies on a complex interplay between the Ministry of Education, the educational networks and the local schools. Educational networks are a specific feature of the Flemish educational system.

Three networks can be distinguished:

- Community education (organised by the Flemish Community);

Teacher Education and Training in Belgium – Flanders

- Regional competence
- Three 'educational networks' (community education /public authorities/private organisations)
- Professional and academic bachelors are educated in teacher colleges

⁷⁷ Portal Belgium.be. Official Information and Services. <http://www.belgium.be/en/index.jsp>.

- Subsidised public authority education (organised by municipal and provincial bodies);
- Subsidised private authority education (organised by private organisations).⁷⁸

In line with the official language of Flanders, education is provided in the Dutch language.

Teacher education – especially primary education - is generally provided as a professional bachelor. Teacher education for secondary education is provided as professional as well as academic bachelor. The professional bachelor courses are oriented towards professional practice. In most teacher education programmes, internships and phases of professional practice are a major part of the studies. Professional bachelors *'comprise general and specific knowledge courses and competencies that are necessary for an autonomous exercise of one specific profession or a group of professions'*.⁷⁹ After finishing his/her studies, a teacher with a professional bachelor diploma is ready to enter the labour market immediately and teach at schools.

Academic bachelor courses prepare students for master courses and focus on general training and the acquisition of academic knowledge. Academic courses are founded on research, they aim making students acquire the skills, knowledge and competences they need to work or teach in the field of sciences or the arts.⁸⁰

Several institutions providing teacher education also provide postgraduate courses (further training in the form of a bachelor-after bachelor or master's courses), which allow for future teachers to specialize in a specific subject or target group.

Entrepreneurship education within the national education strategy

In Flanders, an 'Entrepreneurial Education Action Plan' was approved by different governmental departments (Ministries of Education, Labour and Economy) in 2006 as a joint effort to build a coherent enterprise education policy.⁸¹ The aim of the plan is to sensitise stakeholders to entrepreneurship education.

'Entrepreneurial Education Action Plan' (Belgium-Flanders, 2006):

- Joint effort of three ministries (Ministries of Education, Labour and Economy) to build a coherent policy and sensitise stakeholders to the issue.
- External organizations are funded by a variety of projects and activities to provide support.
- Special projects for teachers (mainly in-service).

The importance of entrepreneurship education is also stressed in policy documents such as the 'Competence Agenda' developed by the Ministry of Education or 'Flanders in Action', a comprehensive plan by the Flemish government to strengthen Flanders' position among the European regions.⁸²

Thanks to external organisations like Syntra⁸³ and Unizo⁸⁴ – which specialize in the subject of fostering entrepreneurship - a wide variety of extracurricular activities and projects exists, which develop material and provide modules to be applied in schools or organize events like business plan contests or test company fairs. Many

⁷⁸ Enterprise education in Flanders. Copie 2: Entrepreneurship Educaion miniCoP. Community of practice on inclusive Entrepreneurship. Valnalon. Available online: Copie and Copie2, URL: <http://copie.esflive.eu/> and <http://www.copie2.es/blog/?lang=en>

⁷⁹ Ibid, p.35

⁸⁰ Ibid

⁸¹ Enterprise education in Flanders. Copie 2: Entrepreneurship Educaion miniCoP. Community of practice on inclusive Entrepreneurship. Valnalon. Available online: Copie and Copie2, URL: <http://copie.esflive.eu/> and <http://www.copie2.es/blog/?lang=en>

⁸² Ibid

⁸³ More Information (in Dutch): www.syntra.be

⁸⁴ More Information (in Dutch): www.unizo.be

schools engage in these activities provided by external actors.

Part of the portfolio of Unizo and Syntra also includes initiatives seeking to professionalize the delivery of enterprise education in secondary and adult education. Teachers can take part in further training to adopt non-traditional approaches and pedagogies to increase the efficiency of entrepreneurial education (Proleron project).⁸⁵ The Flemish Ministry of Education also organises further training courses in cooperation with teacher associations. These courses are usually closely focused on start-up creation.

Implementation of entrepreneurship education in teacher education

Entrepreneurship and initiative taking are regarded as transversal key competences. The Flemish (and Wallonian) curricula do not specify how schools should implement them, only learning outcomes are specified. Since the government pursues a strategy of decentralisation and does not impose a fixed agenda, schools are entitled to find their own pathways. For instance, secondary schools can use the optional part of the curriculum to fill in with supplementary subjects such as entrepreneurship education.⁸⁶

The screening indicates that entrepreneurship education has been launched as a horizontal approach in several teacher education institutions (please consult annex 4 for more details). These institutions position themselves as very modern and situated at an interface between the labour market and education. The entrepreneurial approach is not limited to or specific for teacher education, but characteristic for the whole institution.

Skills and attitudes relating to entrepreneurship are more likely to be found in programmes for teachers in primary education than in programmes for future secondary teachers. Secondary education in Flanders seems to follow a rather technical approach, with the transfer of knowledge as the focus. Teachers seem to be envisaged as specialists and experts rather than as general facilitators or pedagogues who are designed to help students to develop their personality, talent and skills - an approach corresponding to the fact that universities provide secondary or further education, while colleges rather provide teacher education for undergraduates. Consequently, entrepreneurship education directed to skills and attitudes is more likely to be a subject of teacher education for future primary education.

Teachers who specialize in trade and marketing or office management as subjects of secondary education often have elements of knowledge related to business skills (bookkeeping, office administration, project management) in their curricula.

Since the websites do not provide exact figures on the numbers of students in teacher education, it is not possible to assess how many students undergoing teacher education are currently taking part in entrepreneurship education.

Website screening results:

Four institutions that provide a form of entrepreneurship education have been identified.

Ten institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statement, in the teacher education curricula or in their general advertising materials; or by providing training by methods drawing on the pedagogy of entrepreneurship education.

Four institutions engage in extracurricular activities like the 'Undertaking School' program.

Five institutions have research programmes related to the subjects of entrepreneurship and innovation (not particularly on entrepreneurship education).

⁸⁵ Information about the project can be found here:

http://www.ond.vlaanderen.be/dbo/projecten/projecten_proleron.htm

⁸⁶ Enterprise education in Flanders. Copie 2: Entrepreneurship Eductaion miniCoP. Community of practice on inclusive Entrepreneurship. Valnalon. Available online: Copie and Copie2, URL: <http://copie.esflive.eu/> and <http://www.copie2.es/blog/?lang=en>

GROUP T – International University College Leuven – Leuven Education College

Facts about the activity⁸⁷

Group T – International University College Leuven consists of three closely linked schools: Leuven Engineering College, Leuven Education College, and Leuven Anticipative Continuing Education (ACE-Group T). Group T – Leuven Education College is a teacher education college in which students can follow a three-year tailor-made programme to achieve a Bachelor of Education and become a kindergarten teacher, an elementary school teacher or a secondary school teacher.

The education college was known as 'Provinciale Normalschool Leuven' until 1995, when it became a part of Group T.⁸⁸ At that time, about 200 teacher students had enrolled. It is part of the success story of Group T - Leuven Education College that this number has multiplied to roughly 1000 enrolled students in 2011.

From its beginning in 1995/1996, Group T – Leuven Education College adapted a special drive and an entrepreneurial spirit. It was the first teacher education institution in Flanders that initiated project work as an integral part of teachers' studies in 1998. In 2002 – again as the first teacher education institution in Flanders - it adapted a 'portfolio-concept'; which makes it an integral part of a teacher's education, to reflect on his or her personal vision and mission and develop their professional portfolio.

GROUP T – Leuven Education College aims to educate entrepreneurial, creative, and flexible teachers, always ready to deal with change. Teachers are supposed to have a vision and a mission, based on which they form an objective and are able to motivate others. They effectively get things done through innovation, daring, and leadership.

This approach aims at creating an entrepreneurial mindset, risk taking and being ready for change. It is a **horizontal approach** pursued throughout the whole study programme.

To reach this aim, Group T – Leuven Education College works on the basis of the 5E-concept:

- **Engineering** - *teachers create powerful educational learning environments and display inventiveness and creativity in doing so;*

Focus

Group T – Leuven Education College is a teacher education college aiming to educate 'teachers with an attitude', which means entrepreneurial, creative and flexible teachers, always ready to deal with change. Group T works on the basis of a tailor-made concept (5E-concept) and on the basis of the four pillars of education set out by UNESCO.

Aim: to prepare teachers (and their future students) for jobs that don't yet exist, in a future work environment we do not know – in other words, for change.

Target group: primary and secondary school teachers and nursery education (Degree: professional Bachelor of Education).

⁸⁷ Based on an Interview with Stijn Dhert, Dean of Group T-Leuven Education College, conducted by GHK, 3 May 2011.

⁸⁸ Group T website, http://www.groept.be/www/over_groep_t/historiek/

- **Enterprising** - teachers have vision. Based on this vision, they form an objective and gather others around this mission. They effectively get things done through innovation, daring, and leadership;
- **Educating** - teachers are able to bring about and coach the learning process. Their ideal is the development of the person as a whole, referring to UNESCO's Four Pillars of Education: learning to know, learning to do, learning to live together and learning to be. Group T's teacher education is a certified member of UNESCO's Associated Schools Project Network (ASPnet);
- **Environmenting** - teachers are aware of their responsibility in the classroom, at school, and in society. They are conscious of the impact of their actions on a globalizing and ever evolving world;
- **Ensembling** - teachers see the connection between things. By approaching things from all perspectives, they gain richer experiences and reach deeper insights⁸⁹.

GROUP T students are supposed to be able to bring these competences into action in the classroom, in school and in society.⁹⁰ Entrepreneurship education is not seen as an isolated subject, a competence that has to be achieved on top of other competences belonging to a teacher qualification. It is regarded as part of an overall educational concept which includes the aim of developing an entrepreneurial mindset.

The method pursued to achieve the competences necessary to perform 'the art of teaching' follows three components:

Sources and training sessions

Since the entrepreneurial approach at Group T is not limited to one subject, the methods used in class aim at developing knowledge, skills and attitudes at the same time by applying interactive and innovative methods – following the four pillar concept which regards 'learning to know' (acquiring knowledge) and 'learning to do' (acquiring skills) as intertwined. For instance, in history, there is a project in which students re-enact events from certain historical periods together with children from surrounding schools.

In geography, they set up a 'Mars quest', mimicking a Mars environment, moving around with a 'Mars buggy', etc.⁹¹ In the nursery education programme, students set up a 'toy factory' in which they present their self designed educational toys and games to an audience of professors, students, professional nursery teachers, parents and children.⁹²

Teaching practice: communal projects and internships

Teacher students at Group T–Leuven Education College start with practice from day one by working in groups on authentic problems and tasks. The focus is set on three domains of competence:

- The teacher and the learner (classroom)
- The teacher and the team (school)
- The teacher and the society.

Pedagogical methods

- Classical teaching
- Interactive and creative projects – developed in teams
- Practice from day one
- International internships
- Self-reflection/SWOT analysis

⁸⁹ Cf. Group T website, http://www.groept.be/www/over_groep_t/group_t_-_leuven_universi/leuven-education-college-1/becoming-a-teacher-at-gro/pedagogical-project/professional-teachers/

⁹⁰ Cf. Dhert, S. (2011). *GROEP T – Leuven Education College. The art of teaching with an attitude*. Key note at the 21st Annual ETEN Conference, Amsterdam, 14-17 April 2011.

⁹¹ Interview with Stijn Dhert, Dean of Group T-Leuven Education College, conducted by GHK, 3 May 2011, see also http://www.groept.be/www/nieuws/interview/pdf/interview_19-2.pdf

⁹² Cf. Group T website, <http://www.groept.be/www/nieuws/events/2010-2011/speelgoedfabriek/>

Internships and projects are a big part of the workload of teacher students, increasing throughout the whole three-year cycle of the programme. In their first year, students spend about 10% of their time and workload on internships and 25% on projects. The rest of their time is devoted to lectures, seminar work and literature study. In their second year, the time spent in practical training in internships increases to 25%; and finally to 50% in the third year.

This gradual increase of length and tasks goes together with a gradual decrease of external help. A part of this internship is spent in schools in Belgium (Flanders), another part of the internship is required to be spent abroad - all students need to take part in a working experience abroad for at least one week; a great deal of students spend several weeks or even months abroad (in Europe or worldwide). This also applies to teaching staff, who are also encouraged to spend time abroad in study visits.⁹³

The time and workload of project work stays at 25% throughout the entire three years. On the projects, students work together in teams consisting of a maximum of ten people.

Reflection and portfolio

Since the understanding at Group T is that teachers need to have an entrepreneurial spirit, it is regarded as necessary for them to develop their personal 'professional portfolio'. To understand what they uniquely have to offer, they have to reflect on their personal strengths and weaknesses, talents and competences by undertaking a personal SWOT analysis and finally develop their personal vision and mission as a teacher. Graduating students present their professional portfolio to a jury of professors, directors and teachers of the primary and secondary schools they will later work with.⁹⁴

Outcome / impact of the activity

The intended outcome of the teacher education concept pursued by GROUP T is twofold. Primarily, GROUP T aims at educating teachers that are employable and have

Key impacts

- Number of students multiplied by five within 15 years
- Positive feedback from employers
- Future teachers are able to prepare their future students for change

good chances of finding a job, grow within their job, adapt to changing environments and are not afraid of risks in order to shape circumstances according to their ideas and visions. Graduates are very creative in finding jobs and organising challenging tasks outside of the usual pathways, for instance as teachers in developing countries or in human resources development; GROUP T receives very positive feedback from schools which employ GROUP T graduates or host internships of students. The growing numbers of students (increase of five times more students in

the last 15 years) also establishes the success and the good reputation of the programme.

Secondly, of course the aspiring teachers are expected to pass on their competences to their future students in order to enable them to deal with change and to be ready to face the challenges of the future. This concept of dealing with present and future challenges by focusing on creativity and developing a personal vision and mission is closely connected to the 'creativity concept' of Sir Ken Robinson.⁹⁵ Here, it is stated that education needs to take into account that it tries to prepare students for a life in a world not yet known and for jobs that have not been created yet. Knowledge, as important as it

⁹³ Cf. Group T website, videos by students on their international assignments, http://www.groept.be/www/over_groep_t/group_t_-_leuven_universi/leuven-education-college-1/becoming-a-teacher-at-gro/international-context/student-mobility/independent-internship-ab/video/index.xml

⁹⁴ See <http://www.klasse.be/leraren/archief/13347> for more information.

⁹⁵ All our futures – Creativity, Culture and Education, Sir Ken Robinson et.al., NACCCE Report, 1998. Available online: <http://sirkenrobinson.com/skr/pdf/allourfutures.pdf> ; or: <http://www.youtube.com/watch?v=zDZFcDGpL4U>. Sir Ken Robinson on Changing Education Paradigms.

is, might be outdated quickly. Therefore, the most important goal of education is to equip students with the skills, attitudes and competences necessary to deal with these challenges throughout their lives and careers.

Policy context

In Flanders, teacher education institutions are quite independent and entitled to find their own concepts and pathways as long as they achieve the desired results. There is no National Curriculum, but there are defined goals and learning outcomes or certain qualifications. All teacher education courses are based on the same set of so-called basic competencies teachers should have. Educational concepts are not standardized; every institution is given space to create its own learning environment.

In line with several educational reforms that have been implemented in Flanders since 1995, Group T – Leuven Education College has gradually developed and adapted its educational concept – although the concept of entrepreneurship education pursued has not been influenced by the National Action Plan of Flanders.

Lessons learnt

The three higher education institutions belonging to Group T – International University College Leuven developed their concept and amended it continuously throughout the years. In Group T – Leuven Education College, this was done within the usual framework, under the same conditions applicable and with the same resources available as for all other teacher education institutions. No additional funding allocated to projects, etc., was drawn on. The representatives of the institution explain the success of their story as the result of a chance to establish a coherent concept and to bring together the right group of people to develop their ideas.

Since the start of the new millennium some major educational and curricular reforms were implemented at Group T– Leuven Education College. During this (still on-going) process the new management of GROUP T– Leuven Education College has had the chance to hire new colleagues (due to the fact that – on the one hand - several members of the staff working there had almost reached pension age and – on the other – the student population had multiplied) and to select them according to their ability to add to the concept they had in mind.⁹⁶

At Group T – Leuven Education College, teachers and staff are granted the same space to develop their personal creativity and work in accordance with their individual mission as they are supposed to teach their students.

Further information

GROUP T – Leuven Education College
Campus Comenius

Stijn Dhert

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Success factors:

Define your mission and vision: teacher education should be based on a clear and defined coherent educational concept that corresponds to the strengths and weaknesses of the institution and to present challenges.

Find the right people: teachers and tutors should be regarded as professionals who know best how to do their job. It is important to trust teachers and tutors and let them grow to further develop and amend their ideas.

⁹⁶ Interview with Stijn Dhert, Dean of Group T – Leuven Education College, conducted by GHK, 3 May 2011

Provincial College Limburg

Facts about the activity ⁹⁷

The Provincial College Limburg (PHL) has been put forward as one of the Belgian universities that has committed to entrepreneurship education in a horizontal approach. PHL is committed to integrating entrepreneurship education in their teacher education programme and more specifically, into the institution at large as they perceive this as the way forward.

The approach is considered as an absolute necessity for the educational institution to be able to keep up in an ever-changing world.

Focus

Provincial College Limburg has committed to a horizontal approach of entrepreneurship education – perceived as a necessity to keep up with the pace of societal change.

According to PHL, entrepreneurship education's pillars are threefold:

Involvement of the business community

The business community is invited to take part in the course programme and to participate in projects set up by students.

Network and entrepreneurial mindset

Teacher students need to be equipped with a solid network and they need to be entrepreneurial minded and take initiatives.

Public Relations (PR)

PHL is not only internally committed to entrepreneurship education, but also makes sure that this image is carried out externally. PHL's image is young and dynamic; it is an institution that follows the mood of the moment and is up to date. This is an image that is appealing to many contemporary students.

PHL aims to treat entrepreneurship education as part of its organisational culture rather than a piece-meal issue. It deals with the entrepreneurial mindset and behaviour of all staff and students. Several activities have been identified within PHL or within the Department of Education that aim to motivate this mindset and behaviour:

- As part of the '**virtueel ondernemen**' project, teacher students of the business department are in charge of running their own 'virtual company' whereas they are confronted with all aspects of running a business, for instance: human resources, infrastructure and PR. Only recently, the students went to the Global Challenge in New York where they cooperated with similar business from across the globe;
- An **educational visit** was organised to Morocco. The organisation was completely in the hands of the teacher students;
- PHL profiles itself as the '**Laptop University**' where all students are using laptop computers throughout the course of their studies. This affects the ways in which students study and are taught;
- In the beginning of 2011, PHL introduced **digitalised black boards** and they have replaced all traditional black boards ever since. Together with the laptop project, this has resulted in a more active way of delivering education;

⁹⁷ Information in this section is entirely based on interviews with the head of the Education Department, Mr. Marc Hermans, and two members of the teaching staff, Ms. Ellen Rusch and Ms. Klara Leekens, conducted by GHK in April and May 2011.

- **'Manager@breakfast'** is a so-called breakfast session whereas professionals from the business community explain about the different aspects of entrepreneurship, its bottlenecks and successes. It is organised every two weeks;
- **Guest lectures** are also organised on a frequent basis. Only recently a well-known soccer coach came to lecture the teacher students on 'motivational training for teachers'. Among others, he spoke about the competences that are required from soccer players and how these relate to teachers' competences;
- **Independent working** supported by the teaching staff is highly promoted among the teacher education programme. Students spend in their first, second and third year, respectively, 1/6, 2/6 and 3/6 of their time independently. This teaching method aims to encourage students to work on their own ideas, supported by the teaching staff.

Entrepreneurship education does not solely focus on students, but also on the teaching staff. PHL puts much emphasis on the professionalization of its staff. It is considered to be an aspect which is of paramount importance as teachers need to stay up to date and follow the mood of complex and ever-changing societies. In order for it to be effective, entrepreneurship education is integrated into the teacher's career and not treated as a piece-meal issue. The teaching staff is provided with trainings, preferably group trainings, in which all sorts of topics related to entrepreneurship education are covered. For instance, the teaching staff was trained on the use of the digital black boards and the new teaching methods attached by the train-the-trainer programme. PHL has also set up a buddy system whereas colleagues teach one another.

Outcome / impact of the activity

The entrepreneurship education strategy of PHL results in positive outcomes among students, along with the previously identified attitudes and skills. It appears that the teacher students have a high degree of:

- independence;
- assertiveness; and
- initiative taking.

This comes forward in the activities and projects that have been identified. For instance, teacher students are required to find an internship school on their own as a learning experience in which the development of entrepreneurial skills and attitudes are placed central.

PHL is strongly committed to equip the teacher students with the necessary entrepreneurial skills and attitudes and move away from the traditional model teacher student who is, according to the university representatives, rather expected to be humble and modest – especially in internship schools, where assertiveness and initiative taking are not always welcomed. Consequently, it wages on them. A general acceptance of this new type of teacher student is still to be accomplished.

PHL has not yet developed an evaluation tool to monitor the outcomes of its efforts explicitly. Institution representatives state that it is one of their next aims to try and measure the impact and added value of entrepreneurship education on an individual level, based on a clear set of yet to be defined criteria.

Policy context

In December 2006, the Flemish Parliament adopted a decree on the restructuring of the teacher education programmes in Flanders. PHL used this decree to boost entrepreneurship education. However, the concept of entrepreneurship education was not directly influenced by the National Action Plan of Flanders.

Key impacts

Students acquire key competences:

- independence;
- assertiveness; and
- initiative taking.

Students acquire an assertive and confident attitude.

Lessons learnt

When looking at entrepreneurship education it is clearly stated that it is a concept embraced by the entire institution. PHL identifies it as an organisational culture that is created and emitted at all levels: student, teaching staff, secretariat and the cleaning service. As it is considered as an institutional process, PHL does not offer single courses or modules that tackle entrepreneurship education as they believe that this concept should be experienced by the entire organisation and not be treated as a piece-meal issue.

The PHL case has identified several significant lessons within the framework of entrepreneurship education. What became apparent is that PHL made an effort to integrate it into the entire structure of their institution and there is a need for support at all levels: from the director, to the students, to the secretariat – all departments are engaged in adopting the entrepreneurial mindset and the attached behaviour, which is crucial to its success according to PHL. Entrepreneurship is really at the core of PHL's agenda.

Moreover, it was put forward that entrepreneurship education needs to be explicitly carried out internally and externally. The internal and external environment needs to be aware of the institution's commitment to entrepreneurship education. Channels that are used for these purposes include the PHL website⁹⁸, but also word-of mouth advertising by PHL students. In general, it appears that students who have chosen to complete a study programme at PHL are proud of the institution and identify themselves with it. Therefore, they are considered to be the perfect advocates of PHL's concept and approach to teaching.

Success factors:

- Comprehensive institutional development process
- Concept has been embraced by the whole institution – on all levels from general director to secretariat and cleaning staff

Further information

Provincial College Limburg

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⁹⁸ Information on Pedagogical College Limburg, Department of Teacher Education (in Dutch): <http://www.phl.be/eCache/DEF/3/352.html>

Artesis College Antwerp

Facts about the activity⁹⁹

The Artesis' teacher education programme educates teacher students for primary and secondary education and both programmes integrated key aspects of entrepreneurship education. Despite the fact that entrepreneurship education as such is not defined, nor explicitly included in any educational strategy, it is implemented in practice.

Artesis values the training of skills, knowledge and attitudes which develop and stimulate their students' entrepreneurial mindset. Methods which draw on the pedagogy of entrepreneurship education are included in over half of the teaching programme and all teachers are familiar with the practice.

Among the compulsory curriculum of the teacher students there is a great value attached to '*begeleid leren*' (accompanied learning), where the teaching staff has predominantly a supportive role towards the teacher students. Artesis moved away from the traditional teaching methods whereas nowadays the teachers act predominantly as coaches and the students are required and challenged to study and work on projects more independently. In the first year the teaching staff supports the students to a high degree, but students are expected to adopt a higher degree of independency over the course of the programme.

The second year marks the introduction of project education whereas students are assigned to complete tasks in groups. The third and final year is centred around a so-called 'bachelor assignment'. The bachelor assignment is the final assignment and is of practical nature. Examples vary from organising thematic days on subjects like 'health care' or 'bullying' to developing an exercise programme for toddlers or organising activities within the framework of the 'book week' at the library. An assignment can also include the development of existing teaching methods of a particular course – which are usually developed for a non-existing modal student – into an amended version that targets students with special needs, such as pupils with language difficulties.

Within the scope of the bachelor assignment, the school proposes 'job adds' to which the students can apply. The students are also allowed to propose a project of their own to generate and enhance their sense of 'ownership'. Since teachers should be able to work in teams, many of the bachelor assignments are undertaken by groups of students rather than individually.

Artesis introduced this graduation assignment of practical nature as they wanted to move away from the traditional thesis writing assignment. The university believes that writing a thesis is not of the same added-value as the current type of graduation assignment. The current assignment encourages students to adopt an innovative and creative mindset and to put forward ideas as to the development and realisation of the assignment; whereas writing a thesis is mainly a theoretical exercise.

Focus

Artesis College Antwerp introduced teaching methods which draw on the pedagogy of entrepreneurship education. Students work on projects, in groups and teams and finalize their studies by developing a 'bachelor assignment' of practical nature instead of writing a thesis.

⁹⁹ The information in this case study is based on an interview with Mrs. Marleen van Strydonck, conducted by GHK in May 2011.

Outcome / impact of the activity

The approach aims at developing the following skills and attitudes among students:

- sense of innovation;
- creativity;
- communication skills;
- social skills; and
- ability to work independently.

It has been observed that this type of attitude differs per student and certainly not all students are able to take complete ownership of entrepreneurship education skills. Some students have developed substantially within the framework of entrepreneurship education and have adopted an entrepreneurial mindset, are creative and work innovatively. There are other students who are less comfortable with this approach.

Entrepreneurship education also influences the teaching staff, its role and teaching methods. Project work is very demanding in terms of preparation efforts and results in more work for teachers than the classical approach. Overall, the college representatives state that the skills, attitudes and knowledge in relation to entrepreneurship education that are demanded from the teacher students, should also be adopted by the teaching staff. Recently, the teaching staff received training on contemporary evaluation methods. Project evaluation differs substantially from exam evaluation. Moreover, training was given on the implementation of artistic activities and creative teaching methods in the curriculum. This training was made available to the entire teaching staff team. It thus did not solely focus on artistic courses in the curriculum, but covered all teaching areas; to point out that artistic activities can also be integrated in the teaching of mathematics, for example.

Policy context

The concept of entrepreneurship education development is not influenced by the National Action Plan of Flanders. College representatives state that the activities have been set up by the institution in an effort to introduce up-to-date teaching methods and provide high-quality education to students. In this regard, Artesis has already been committed to activities related to entrepreneurship education for more than a decade. Over the course of time, its commitment has gradually grown into the current state of affairs.

Lessons learnt

An important lesson learnt in the Artesis case is that expectations connected to certain teaching approaches and methods should be expressed very clearly. The student should know what to expect and external partners (internship schools) should know what to expect from the student. Communication is an important aspect of this process.

Further information

Artesis College Antwerp

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Lessons learnt

- Teachers need support and training to apply new and creative teaching methods.
- Not all students have the aptitude to take ownership of their projects and of an entrepreneurial spirit.
- Innovative methods require clear communication about the expectations connected to them.

Croatia

Summary

In Croatia, entrepreneurship education is addressed in the National Curriculum Framework as one of the key competences that needs to be further developed. In 2007, the Ministry of Economy, Labour and Entrepreneurship of the Republic of Croatia took an initiative to establish structured co-operation amongst the countries of South Eastern Europe on lifelong entrepreneurial learning and founded the South East European Centre for Entrepreneurial Learning (SEECEL). In the field of teacher education, SEECEL has developed pilot modules for teacher education that will be tested in late 2011.

Entrepreneurship is mentioned as a key competence in the national educational strategy, but entrepreneurship education is not yet part of the curriculum in the teacher education institutions. The website screening process revealed however, that several teacher education institutions provide skills, knowledge and attitudes related to entrepreneurship education. One university, the **University of Pula, School of Education**, provides an elective course on entrepreneurial learning for its teacher students. The activities connected to this course titled 'Entrepreneurship for non-economists' are presented in further detail below.

Croatia

Entrepreneurship is a key competence within the national educational strategy; but it is not yet included in the curricula.

One teacher education institution provides entrepreneurship education.

Case study:

University of Pula

Background information on teacher education in Croatia

Education in Croatia at all levels (basic, secondary and tertiary education) is under the competence of the Ministry of Science, Education and Sports. Basic and compulsory education (elementary school) provides a wide all-round education lasting eight years. Basic education is organized in two four-year-long stages: one-teacher education (only one teacher does all the teaching) and subject teaching (the teaching is done by several teachers, their number depending on the number of subjects). **Secondary education is** divided into: four-year general education (gymnasia); four-year vocational education (technical and other vocational schools); four-year art education; three-year vocational schools and completed profession schools; schools for occupations which require lower education qualification and on-the-job-training. Teacher education is a matter of higher education institutions and is performed at universities and teacher education colleges and is provided in seven institutions over Croatia. As entrepreneurship and initiative taking are transversal key competences, the national curriculum does not specify how schools should implement them. Since the government pursues a strategy of decentralisation and does not impose a fixed agenda, schools are entitled to find their own pathways.

Entrepreneurship education within the national education strategy

The Croatian National Educational Strategy pursues three goals: promoting independent thinking of children, employability and entrepreneurship. Key lines of entrepreneurship promotion have been developed. The Croatian Chamber of Economy has launched the Education for Entrepreneurship (E4E) project, which is supported by the Croatian Ministry of Economy, Labour and Entrepreneurship, the Ministry of Science, Education and Sports, the Ministry of Agriculture, Fisheries and Rural Development, the Ministry of Regional Development, Forestry and Water and the Ministry of Tourism.

E4E pursues the strategic goal of promoting entrepreneurial learning as a key competence in all levels and forms of education and aims at a fast implementation of changes in education: aligned with matching development directions of the overall

Croatian economy. E4E organised a series of events aimed at promoting entrepreneurial learning in education, e.g. the 'Children's Entrepreneurship Week', during which pre-school, school children and university students participated in activities that heightened awareness of the importance of entrepreneurship as a key competence.¹⁰⁰ In universities, entrepreneurship education programmes are offered through courses and modules and are focused on the undergraduate, graduate and postgraduate level. Programmes are divided into sectors in schools/faculties/departments of business administrations, economics and management with the variety of goals, teaching strategies and quality standards.¹⁰¹

SEECEL

In 2007, an initiative was launched to coordinate activities on entrepreneurship learning amongst East-European countries called South East European Centre for Entrepreneurial Learning (SEECEL). Pilot modules for teacher education have been developed and are ready for testing.

In 2010, SEECEL launched a set of regional cooperation actions to bring forward the entrepreneurship education agenda. National expert groups from eight countries in the region (Albania, Bosnia and Herzegovina, Croatia, Kosovo [UNSCR 1244], Former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey) are developing strategies on how entrepreneurship is to be effectively implemented across the learning systems. One of the goals of SEECEL is the promotion of entrepreneurship at third level education within non-business disciplines. A

working group on teacher education has been established and pilot modules have been developed; ready for testing in late 2011.¹⁰²

Implementation of entrepreneurship education in teacher education

In Croatia, entrepreneurship education is provided in economics-related study programmes; however it is not very common in initial teacher education. Seven institutions and 14 training programmes¹⁰³ have been screened. No institution refers to the core values of entrepreneurship education in their mission statement. Only one activity explicitly related to entrepreneurship education in initial teacher education has been identified. At the University of Pula, in the department of preschool and school teaching, within a five-year study programme one elective course 'Entrepreneurship for non-economists' is offered. A cross check of these results with SEECEL confirms that there are no other programmes in Croatia in addition to what is offered by the University of Pula. However, a SEECEL expert team composed of representatives of all eight SEECEL member states is working on developing concrete modules for teacher education at ISCED 5/6 level. After conducting and evaluating the pilot phase which is set to begin in the 2011/12 academic year, it is expected there will be more entrepreneurial learning in teacher education programmes in Croatia.¹⁰⁴

Website screening results

One institution provides entrepreneurship education in teacher education as an elective course 'Entrepreneurship for non-economists'.

The teacher education institutions do not specifically refer to the core values of entrepreneurship education in their mission statement.

¹⁰⁰ More information: <http://www.e4e.com.hr/?lng=en>

¹⁰¹ Pfeifer, Oberman-Peterka and Jeger, Research paper- Assessing entrepreneurship education programmes in Croatian higher education area, p.1-17

¹⁰² www.seecel.hr

¹⁰³ For Croatia, different pathways to become a secondary teacher specialized on a combination of different subjects have been counted as one programme and the existence entrepreneurship education has been cross-checked.

¹⁰⁴ E-mail Maja Ljubic, maja.ljubic@seecel.hr, 1 April 2011.

University of Pula

Facts about the activity¹⁰⁵

At the University of Pula, an elective course 'Entrepreneurship for non-economists' is offered to all students of non-economic subjects. In the teacher education department, the target group of this activity are students of pre-school and primary school teaching.

Students get the chance to develop core entrepreneurship competences and to provide knowledge about how to initiate and maintain their own business - no matter if it is a car-repair shop, a dentist practice or a kindergarten. The initiators aim to enhance self-confidence and self-motivation and foster positive attitudes towards risk taking.

The course 'Entrepreneurship for non-economists' is one of the results of the (Fostering Entrepreneurship in Higher Education (FoSentHE) project¹⁰⁶ and it addresses all students that are not majoring in business or economics; it was designed to foster entrepreneurship spirit. It has been implemented in the University of Pula as an elective (optional) course in the fifth year of the undergraduate study since 2010. The course lasts for one semester and is comprised of five modules (introduction to entrepreneurship, leadership, business plan development, organisational culture, and a business game). The course is worth three to six ECTS credits - depending on the engagement of the student. The course is designed as an e-learning activity. Students can work on their tasks at any time and from any place that is convenient for them. The course is taught in English.

Focus

Elective course
'Entrepreneurship for non-economists' - addresses all students in non-economic subjects (3-6 ECTS credits)

In the course, students get the opportunity to develop core entrepreneurship competences and to gain knowledge on how to initiate their own business – in social entrepreneurship as well as in classic business areas. They are encouraged to enhance their self-confidence and self-motivation and achieved a positive attitude towards risk taking. During the course, students are requested to develop a business plan for their own 'virtual' company. As they develop the business plan, they compete against each other. An online forum is used both by teachers and students to discuss plans, initiatives and general issues like the students image of a typical entrepreneur.

The 'Business Game' module has proved to be quite challenging but at the same time interesting for students. Virtual companies were created by the students that had to compete for their place on the market. All companies had the same conditions for development and growth. An award was given to the most successful company. If the student wishes to pursue this business idea in the real word s/he is provided with details of support organisations.

Outcome / impact of the activity

To date, 20 students from several faculties have participated in the course. After an initial phase of reluctance, when only two students attended, word-of-mouth advertising helped to increase the rate of participants. Students appear to be very interested in the course and the dropout rate is low. It is not known, though, how many teacher students are among the twenty participants.

¹⁰⁵ The information is based on an interview with Marina Dabic, Professor at the University of Pula, conducted by GHK in April 2011.

¹⁰⁶ Cf: <http://web.fosenthe.efzg.hr/partners>

During the course, the university also gathers experience with e-learning and online-teaching. The equipment, software and teacher skills will enable future generations to continue working with this course and therefore enable a multiplication effect.

Context and history of the activity

The activity started in 2009 as a part of the FoSentHE project, funded within the TEMPUS programme. The project was created as a joint initiative of 12 institutions from Belgium, Poland, Austria, France, Lithuania, Slovenia, Israel and Croatia, led by the University of Zagreb Faculty of Economics and Business (Croatia). FoSentHE allowed for the creation of an interdisciplinary research forum and provided a window of opportunity for scholars, researchers, entrepreneurs, businessmen, managers, consultants and practitioners in the field of entrepreneurship.

The mission of the FoSentHE project is to 'create the E cathedral' through the '5e5' outcome model, which is comprised of:

- Entrepreneurial mindset: developing an entrepreneurial education as an academic discipline and promoting entrepreneurship in the curricula of non-economic studies.
- E-learning: develop an innovative virtual campus of higher academic institutes and enter a public dialogue.
- Excellence: aiming at excellence in teaching and business by introducing modern technology and cutting edge teaching methods and interaction.
- E/E Centres: create centres for education/entrepreneurship which provide various forms of education and training in the field of entrepreneurship and foster entrepreneurship and the economy as a whole.
- European Network: aim at the internationalization of the curriculum and at the creation of models and processes that are flexible and applicable internationally.

Success factors

- Implementation fostered by preceding European project (FoSentHE)
- Chance to develop broad underlying concept within project
- Chance to develop and test new e-learning concept and tools

Lessons learnt

- Students need time to warm to the subject
- New modules should be elective in a testing phase, compulsory in a later phase, when interest is proven.

Lessons learnt

The University of Pula sees the development and initiation of such a project as a good way of testing new ways of introducing entrepreneurship to non-economists. The initiators are also happy with the approach that learners can choose the activity as an elective programme and, if interested, learners can later implement it as a regular part of the curriculum.

The university also benefits from the experience of e-learning tools, both in terms of benefiting from technical as well as didactical aspects. The university has also learned that students need some time to warm to the notion of entrepreneurship education. Experience shows that word of mouth-advertising among students is playing an important role in this process.

Further information

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Finland

Summary

Finland set up the process of implementing entrepreneurship education in its presently known form in the mid-nineties.¹⁰⁷ From the beginning, teacher education has been a part of a comprehensive strategy put forward by a consortium of National Ministries and stakeholders in the field of education and training. Consequently, Finland is one of the most advanced countries regarding the implementation of entrepreneurship education in initial teacher education.

The website screening showed that the importance of entrepreneurship education is emphasized in the institutional or departmental mission statement of all but one of the screened teacher education institutions. All of the screened institutions provide a form of entrepreneurship education; courses and modules on entrepreneurship education are on offer as electives across all institutions.

Currently, a joint national strategy of the Finnish Ministry of Education, the Ministry of Employment and the Economy, the Central Chamber of Commerce, the Federation of Finnish Enterprises, trade unions, higher education institutions et al. is being pursued: which puts specific emphasis on initial teacher education.

The activities of three institutions are presented in more detail. At the **University of Jyväskylä**, entrepreneurship education pedagogy is applied in all courses; additionally students can take part in several optional courses on entrepreneurship education. At the **University of Oulu, Kajaani Department of Teacher Education**, students are offered a compulsory course, while at the **University of Turku**, the project 'YVI-Virtual Learning Environment of Entrepreneurship Education' has been set up and aims at developing the enterprising/entrepreneurial pedagogical readiness of teacher educators in terms of entrepreneurship education.

Background information about teacher education in Finland

Education in Finland is the responsibility of the Ministry of Education and Culture. The Finnish National Board of Education (FNBE) works with the ministry to develop educational aims, content and methods for primary, secondary and adult education. In addition, each of the six Finnish provinces has an Education and Culture Department. Local administration lies in the responsibility of the local authorities (municipalities), which play a prominent role as education providers. Most institutions providing basic and upper secondary level education are maintained by local authorities or joint municipal boards (federations of municipalities).¹⁰⁸

In Finland, instruction at general education institutions may be given by class teachers, who mainly provide instruction for grades 1–6 in basic education, teaching all subjects: or by subject specialists, who teach one or several subjects in basic education (primarily in grades 7–9) and/or in general upper secondary education.

Students in class teacher education take the higher academic degree (300 ECTS credits), i.e. a master's degree, with education as their main subject. The theoretical

Finland

Finland has had a joint national strategy for entrepreneurship education since 1994 and implemented a wide range of measures. All of the teacher education institutions screened offer a form of entrepreneurship education in teacher education.

Case studies:

University of Jyväskylä
University of Oulu, Kajaani
Department of Teacher Education
University of Turku

¹⁰⁷ Guidelines for entrepreneurship education, Finnish Ministry of Education, 2009, p. 25

¹⁰⁸ Eurybase: National system overviews on education systems in Europe and ongoing reforms: Finland, November 2010, p. 2

http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf

pedagogical studies are complemented by practical training that amounts to 20 ECTS credits.¹⁰⁹ Teaching practice (internships at several stages of studies) may be included

Teacher education and training in Finland

- Strict entrance examinations and aptitude tests – entrepreneurship experience considered a plus.
- Activities of education providers guided by objectives laid down in legislation and national core curricula.

in basic, subject and advanced studies. Class teachers may specialise in teaching one or several subjects in their minor subject studies which give additional eligibility to functioning as a subject teacher in grades 7–9 of basic education. The majority of the current graduating class of teachers have acquired both class and subject teaching qualifications.¹¹⁰

Applicants to class teacher education must have successfully completed the matriculation examination. The entrance examination for class teacher education includes a written examination, an aptitude test and interviews. Some universities also include a group situation and an optional teaching demonstration in their entrance examination. In recent years, the experience of entrepreneurship has been considered to be a special merit that can bring extra points for the teacher education applicant in admission,¹¹¹ showing increasing attention to the importance of entrepreneurial skills and attitudes. Teacher education is provided by seven Finnish-language universities and one Swedish-language university: all of these are multi-disciplinary research universities.

Class teacher education is provided by university faculties of education or other equivalent units called teacher education units. Each teacher education unit has teacher education school(s) for teaching practice, experiments, research and continuing education. Subject teacher education is provided by university faculties of different subjects combined with pedagogical studies provided by teacher education units within faculties of education. The periods of teaching practice included in pedagogical studies are organised at university teacher education schools and at so-called affiliated schools.¹¹²

Entrepreneurship education within the national education strategy

In 1994-1995, Finland launched a strategy of systematic inclusion of entrepreneurship education in basic education, upper secondary and vocational core curricula. Pilot projects in schools and for training of in-service teachers were implemented. Additionally, an initiative for a 'Decade of Entrepreneurship' (1995-2005) was launched by the Ministry of Trade and Industry, the Ministry of Labour, the Ministry of Education, the National Board of Education and the Federation of Finnish Employers. The initiative was comprised of three main subjects: entrepreneurship in society; entrepreneurship in securing and developing jobs; and development and promotion of entrepreneurship. Entrepreneurship education also became a part of this strategy from 2000 on.¹¹³

In the curriculum reform of 2004, entrepreneurship was written down as a thematic entity, as 'participating citizenship and entrepreneurship' (basic education) and as 'active citizenship and entrepreneurship' (upper secondary education).¹¹⁴ Entrepreneurship education is considered to be a key priority in education and training, its content and methods permeating all subjects.¹¹⁵

¹⁰⁹ Ibid, pp. 152 and 154

¹¹⁰ Ibid, p. 155

¹¹¹ Ministry of Education: *Yrittäjyyskasvatuksen suuntaviivat*, p. 28

¹¹² Eurybase: Organisation of the Education System in Finland 2009/2010, p. 151

¹¹³ Guidelines for entrepreneurship education, Finnish Ministry of Education, 2009, p. 25-26

¹¹⁴ <http://www.enorssi.fi/hankkeet/yrittajyyskasvatus/entrepreneurship-education-1>

¹¹⁵ Guidelines for entrepreneurship education, Finnish Ministry of Education, 2009, p. 25-26

In 2009, the Finnish Ministry of Education outlined its renewed national strategy in the 'Guidelines for entrepreneurship education'.¹¹⁶ Still, there is notable collaboration between different entities in the promotion of entrepreneurship in education and training. The partners involved in the elaboration of the National Strategy on Entrepreneurship Education included among others: the Ministry of Employment and the Economy, the Ministry of Agriculture and Forestry, the National Board of Education, the Central Chamber of Commerce, Federation of Finnish Enterprises, Trade Union of Education in Finland (OAJ), and Finnish Enterprise Agency, as well as higher education institutions, namely the University of Oulu/Kajaani Department of Teacher Education, the University of Turku/teacher education school and Lappeenranta University of Technology.

The national guidelines include a variety of measures aiming to support the embedding of entrepreneurship education at all levels (local, regional, national, international), including research and teacher education, and they set out four development priorities by the type of education (early childhood education, general education, vocational education and training, and adult vocational education and training). In general education, the emphasis is on positive attitudes, basic entrepreneurial knowledge and skills and an entrepreneurial mode of operation. Entrepreneurship is seen as a cross-curricular theme and competency. The Ministry of Education has also allocated separate funding for research and development projects in teacher education and the training of teacher educators in entrepreneurship education (mostly projects in universities providing teacher education). Specific effort has been put into including entrepreneurship education in initial teacher training.¹¹⁷

'Guidelines for entrepreneurship education' (Finland, 2009):

Finland has implemented a national strategy including a variety of measures with the aim of embedding entrepreneurship education; it is seen as a cross curricular issue and competence at all levels of education, anchored in the national curriculum.

The importance of initial teacher education has been emphasized; research and development projects have been set up.

Implementation of entrepreneurship education in teacher education

According to the Ministry of Education, a great deal of effort has been put into implementing entrepreneurship education in initial teacher education. Additionally, measures have been taken to recruit more teacher trainers with a personal experience in entrepreneurship. For applicants to admission in teaching, experience of entrepreneurship will also be considered a plus that can bring extra points.

The national strategy is mirrored in teacher education programmes across all institutions. The website screening results showed that entrepreneurship education or relevant skills and learning outcomes have been integrated in the mission statements of all but one of the screened institutions, and most teacher education programme descriptions make direct reference to the core aims of entrepreneurship education. The approach seems to concentrate on horizontal skills and attitudes rather than on specific entrepreneurship relevant knowledge. Entrepreneurship and innovation are mostly part of an overall strategy across the institution or faculty; teaching and training methods at all institutions focus on independent learning, group work and practical training, and encourage innovative and new approaches to teaching.

¹¹⁶Ministry of Education: *Yrittäjyyskasvatuksen suuntaviivat*. Opetusministeriön julkaisuja 2009:7. Yliopistopaino, Helsinki 2009.

http://www.minedu.fi/OPM/Julkaisut/2009/Yrittajyyskasvatuksen_suuntaviivat.html?lang=en&extra_locale=en

¹¹⁷ Ibid.

Website screening results:

All eight institutions providing teacher education offer elective courses in entrepreneurship via other faculties. Five institutions also provide entrepreneurship education modules in the teacher education unit. They all use training methods that draw on the pedagogy of entrepreneurship education.

Seven institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statement, in the teacher education curricula or in their general advertising materials.

Three institutions carry out research related to entrepreneurship education in their teacher education unit/pedagogy faculty.

In addition to this, specific entrepreneurship education modules are on offer as electives across all institutions. These courses are generally provided by faculties of economics and administrative sciences where the focus is on entrepreneurship and business know-how. Five teacher education institutions were identified as providing modules in entrepreneurship education as electives within the teacher education department or school.

In 2009, according to the Ministry of Education, entrepreneurship education modules were a compulsory component in the Kajaani Department of Teacher Education of the University of Oulu,

in crafts teachers' programmes in the Rauma Department of Teacher Education of the University of Turku and the Vaasa Department of Åbo Akademi University.¹¹⁸ All Finnish student teachers are however, exposed to entrepreneurship related pedagogy. The overall teaching methods (such as projects, practical training, responsibility planning of studies, group work, practical training, etc.) support the acquisition of entrepreneurial skills and attitudes.

The guided teaching practice included in initial teacher education does not include guidance in entrepreneurship consistently, even though it is a cross-curricular theme in both basic and general upper secondary curricula. An 'entrepreneurship education group' with members from 13 teacher education schools has been set up, which focuses on providing better support services for guided teaching practice, with special emphasis on support material for curricular work.¹¹⁹

¹¹⁸ Ministry of Education 2009, p. 28

¹¹⁹ Ibid, p. 30

University of Jyväskylä

Facts about the activity

The university's strategy is to use typical entrepreneurship education pedagogy in all teaching, thereby reaching all students, and offering in addition, specific entrepreneurship education courses to those who have a special interest in the theme.

The definition of entrepreneurship education used in the University of Jyväskylä focuses on the idea of 'growth into citizenship'. The approach encompasses skills and knowledge related to both 'internal' and 'external' entrepreneurship, i.e. the acquisition of a wider set of attitudes and skills to be used in all professional contexts on the one hand, and gaining specific skills and knowledge needed to act as an entrepreneur, on the other hand.

Skills aimed for and methods used throughout the education process are those considered as part of a good participative education: activeness, independence, self-drive, responsibility, initiative, and so on. However, these skills and methods are considered rather in terms of what it is to be a good citizen, not actually as entrepreneurship-specific. Indeed, what is now considered as an entrepreneurship education approach or method has been part of what a good education entails for years. In other words, the horizontal approach to entrepreneurship education was already established before it was labelled as such.

Focus

- Entrepreneurship education pedagogy is applied in all teaching.
- Specific entrepreneurship education courses are offered as elective modules (introductory course – 3 ECTS credits, advanced course – 3 ECTS credits, entrepreneurship course at the Faculty of Economics - 5 ECTS credits).

Three optional courses in entrepreneurship education are on offer:

Introductory course on entrepreneurship education

The course is delivered in cooperation with the Humanistic University of Applied Sciences HUMAK, and was introduced in the study

programme in 2005. It is open to class student teachers and special education student teachers from the University of Jyväskylä, as well as to community pedagogy students from HUMAK. The introductory course can be taken by students during their bachelor level studies, i.e. in the first three years of studies.

The course provides an introduction to the concept and basics of entrepreneurship education through analysis, entrepreneurship literature, and the planning and execution of a project. Projects include initiatives such as work in schools, analysis and development of the local entrepreneurship education framework, creation of networks with private businesses, development of entrepreneurship education materials, and so on. The purpose of project work is to link the theories of entrepreneurship education to concrete activities as part of the pedagogical approach, or wider functioning of the school, or the community. The outcomes of projects are presented in a seminar open to people from outside the course. The teaching methods of the course draw clearly on entrepreneurship education pedagogy; the approach requires students to 'go and do', which means that students should practice risk assessment, creativity, learn to assess financial consequences of projects and initiatives, etc.

While the course provides students with a basic level of knowledge on entrepreneurship education, its primary objective is to help students acquire entrepreneurship education relevant skills, and to achieve a change in students' attitudes. Apparently there is a predominantly negative attitude to entrepreneurship education among teachers and

student teachers which results from a lack of understanding of the term and its relevance for teachers and their work. Students are awarded 3 ECTS credits for the course.

Advanced studies course on 'Learning organisations and entrepreneurship education'

The concept of entrepreneurship education is further deepened in an advanced studies course on 'Learning organisations and entrepreneurship education', but the context changes, as students move the focus of their work from the pedagogical community to enterprises. In the advanced studies course students observe enterprises as learning organisations. After familiarising themselves with the concept of learning organisations, the group spends a determined time in the enterprise observing, interviewing staff, and - to the extent possible - participating in the activities of the enterprise in order to collect material. This is intended to result in an analysis and recommendation for the development of a learning system in the respective enterprise. The course offers student teachers the opportunity to apply their expertise and knowledge in a different environment and at the same gain a more comprehensive understanding of enterprises.

The local 'Economic Information Centre', which is closely linked to the local Chamber of Commerce, participates in the organisation of the projects by helping the institution select enterprises interested in gaining an external point of view on their enterprise. The advanced studies course can be taken during master's level studies, i.e. after the first three years of studies; it attracts 3 ECTS credits. About 15-20 students each year take the optional introductory course, while 10-15 students take the advanced studies course.¹²⁰

Entrepreneurship education at the Entrepreneurship Unit of the Faculty of Economics

In addition to these two courses, teacher trainees can take elective substance studies in entrepreneurship education at the Entrepreneurship Unit of the Faculty of Economics for a total of 5 ECTS credits.

It should be noted that, even if the teacher education unit has no obligatory entrepreneurship education specific programmes, all students are exposed to entrepreneurship education methods, and gain relevant skills through the strongly present horizontal approach. For example, all teachers undergo extensive practical training, where they apply their chosen pedagogical methods in practice. Even if the traineeship is not considered to be related to entrepreneurship education, the skills gained through the training are clearly related to those listed for entrepreneurship education.

Outcome / impact of the activity

The entire teacher education process aims at preparing students to acquire skills such as taking initiative, being independent, and developing the ability to assess risks. The basic principle is that the more a student is tested on their courage to take new risks and to be creative in problem solving, the more they will develop as a teacher and as a professional. One of the main objectives of the overall teacher education is that future teachers understand what entrepreneurship education entails, and have a positive attitude towards it. The specific objectives of the optional courses are to: improve the understanding of the nature and role of entrepreneurship education in basic

Key impact

The results of a 'before and after' monitoring shows that students changed their attitude towards entrepreneurship after they went through one of the entrepreneurship modules.

Key skills such as taking initiative, being independent and creative and the ability to assess risks are developed by the horizontal approach.

¹²⁰ No information has been provided on the total of Master level students per year.

education; to familiarise students with the central concepts and practices of entrepreneurship education; and to prepare them for applying those notions in practice.

The actual outcomes of the activities are hard to assess, but a slowly changing attitude towards entrepreneurship can be clearly perceived through the monitoring of opinions before and after the courses. Initial negative attitudes change as students gain a better understanding of what the concept means, and how it is relevant for teachers. Other entrepreneurship education related skills and attitudes are gained through the application of a teaching methodology that underlines the active participation of students in the learning process through projects, group work, independent planning of studies, training, etc.

Some of the final course projects of the courses on entrepreneurship education have had an impact locally in the school or community where the project was carried out. For example, a project which researched teachers' attitudes to entrepreneurship education has supported the further enhancement of cooperation on entrepreneurship education.

Context and history of the activity

The specific entrepreneurship education courses at the University of Jyväskylä have been running since 2005. The development of the courses has been implemented by a combination of top down and individual bottom-up impulses. The rector of the university has always been interested in the idea of entrepreneurship education and has always had a supportive attitude to individuals wanting to develop specific modules, including enabling the use of time and financial resources. The latter have however, only been available mainly via projects at the regional level.

The fact that the national government has put priority on entrepreneurship education since 2003, has put pressure on schools and teacher education. The national guidelines on entrepreneurship education from 2009 have assisted in speeding up development across the country. In Jyväskylä, an increased national level interest has led to a growing interest at the institutional level, but concrete activity still relies on dedicated individuals at the teacher education unit.

The Jyväskylä Teacher Education Unit has not yet noticed any additional demand to 'do more' for entrepreneurship education. Courses currently available respond to the needs of the students and the objectives set out by the national guidelines. The fact that optional courses are available as side studies at the Faculty of Economics (Entrepreneurship Unit) makes the further development of specific courses in the teacher education unit less urgent. At the same time, it is clear that the adopted horizontal approach means that all courses, independent of their subject matter and content, are expected to continue to support the development of entrepreneurship related skills and attitudes.

Lessons learnt

The initiatives on entrepreneurship education have been strongly supported by the Finnish Government as a priority development area in the pursuit of increased international competitiveness. At the institutional level, management attitudes have been positive throughout, and funding has been available through regional projects. Strong leadership coupled up with financial support for the

Success factors

- Demand by national initiative;
- Dedicated individuals ready to take on the work of developing specific courses;
- Support by school management;
- Additional resources via regional projects.

Lessons learnt

- Face the challenge of forming a more positive attitude towards entrepreneurship among teachers and student teachers;
- A combination of horizontal methodical approach and specific modules has proven to trigger positive results;
- Practical projects can convince students of the relevance of entrepreneurship education.

development of programmes and initiatives, is an important pre-condition for the successful introduction of specific entrepreneurship education courses.

The main obstacle in entrepreneurship education is the negative attitude of teachers and teacher education students, who often consider entrepreneurship something irrelevant for schools and pupils in the future. Therefore, the main challenge is to start forming more positive attitudes to entrepreneurship education through increased knowledge of what it means. Practical projects can demonstrate the relevance of entrepreneurship education in their profession.

The approach is transferable without any specific difficulties as long as management level support is ensured, and dedicated individuals are ready to take up the development of specific courses.

Additional activities in the context of entrepreneurship education

The University of Jyväskylä is involved in the Ehjä Polku - initiative that started on 1 May 2008 and will come to an end on 31 December 2011. The overall aim of the project is to reinforce the implementation of entrepreneurship education in the region of Central Finland at all levels, from pre-school to higher education. The initiative focuses on sharing experiences and spreading information on methods related to learning-by-doing suitable for different age-groups. The objective is to develop a regional strategy on entrepreneurship education, and to build a network of entrepreneurship educators in Central Finland.

Partners of the project are the HUMAK University of Applied Sciences, the Jyväskylä University of Applied Sciences, the University of Jyväskylä and the Äänekoski professional education district. Communes, enterprises and third sector actors of Central Finland are also involved in the project. The initiative receives funding from the European Social Fund and the Central Finland Centre for Economic Development, Transport and the Environment.

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University of Oulu, Kajaani Teacher Education Unit

Facts about the activity

The University of Oulu Kajaani, Department of Teacher Education supports the creation of a more positive attitude to entrepreneurship education among the general public, through change of attitudes among teachers and pupils. The overall objective of the programmes is to train teachers to develop and implement tools and methods to make pupils active citizens in line with the spirit of entrepreneurship.

Entrepreneurship education is understood as comprehending both subject specific business-related knowledge, but also wider skills and competences, such as independence, problem-solving, sense of initiative, creativity, and so on. The general entrepreneurship skills and attitudes are underlined in all courses taught at the Department of Teacher Education.

In addition to a prominent horizontal approach which is strongly in line with the objectives of entrepreneurship education and uses many of its typical methods, the teacher education unit in Kajaani has implemented a compulsory course of 5 ECTS credits¹²¹ in Entrepreneurship pedagogy into the teacher education programme for all student teachers since 2008.

Focus

- Horizontal approach, cross-curricular appliance of methods;
- Compulsory course in entrepreneurship pedagogy (5 ECTS credits).

The course is taken at Masters Level, towards the end of the five-year long teacher education programme. It is delivered through a combination of class-room theoretical studies, enterprise visits, and a practical project.

In class, students attend lectures to familiarise themselves with entrepreneurship education terminology and concepts. Later on, students take part in a visit to an enterprise and learn what kind of skills and abilities enterprises look for in a future

employee. The visit is then followed by a discussion among students on how teachers can prepare pupils to gain the skills needed by employers. At the end of the course, students carry out a project. The projects include initiatives such as preparation of entrepreneurship education teaching materials to be used in schools, or analysis of existing school curricula in schools across Finland from the point of view of entrepreneurship education.

A lecturer of the local teacher education school takes part in teaching of the course – which is an example of good collaboration between the teacher education unit and the training school.

The course covers both knowledge (e.g. on interests and some other basics of economics), skills (developed through cooperation, project planning, cooperation with enterprise, etc), as well as attitudes and values.

In addition to the compulsory course students can take entrepreneurship education as their side subject and follow a set of related courses for a total of 25 ECTS credits. However, very few students take entrepreneurship education as a full side-study option: about 30 students have taken the course since it was launched in 2003.

¹²¹ The credits will be reduced to 4 in the 2011-2012 academic year.

Outcome / impact of the activity

The students of the entrepreneurship pedagogy course have developed entrepreneurship education teaching materials for teachers in all subjects taught in basic education (such as Finnish language, maths, physical education, chemistry, etc.). In 2010, a publication of about 400-500 pages - including class plans with objectives, implementation, and practical requirements - was prepared by students of the course. The materials are made available both on the website of the teacher education unit, as well as on the website of the network of Finnish teacher education schools *eNorssi*.¹²²

At Kajaani, university representatives also claim that teachers and student teachers often hold negative attitudes to entrepreneurship education because of a lack of understanding. Therefore, the main objective of the entrepreneurship pedagogy course is to create a more positive image of entrepreneurship and entrepreneurship education among teacher trainers, and - in the longer run – the hope is that teachers trained in entrepreneurship education will then pass on the positive attitudes to pupils, who will consequently be better prepared for the demands of society and can become active and participating citizens. This objective set for the course, has been met even more successfully than expected. A blog collecting students' opinions on entrepreneurship education before and after the course shows a significant shift towards a highly positive attitude to entrepreneurship education during the course.

Key impact

- Teaching material for aspects of entrepreneurship education in all subjects has been developed by student teachers;
- Significant change towards a positive attitude to entrepreneurship education occurred;
- Teachers will pass on that positive attitude to their students – change of attitude will multiply.

In calculating the number of students who will take the obligatory course every year, within four to five years, it is predicted that about 16 000 pupils will have been taught by teachers who have taken the course. Therefore, while it is too early to assess the actual impact of the programme, the hope is that students who have gained a positive attitude to entrepreneurship through the course will pass on that attitude to their pupils. Former students who have taken the course often contact the university for advice on the implementation of entrepreneurship education in their schools, thereby implying a continued interest in the theme.

Context and history of the activity

The course started as a natural spin off of the regional project KYTKE 2005 (carried out in 1997 – 2000 and coordinated by the Department of Teacher Education in Kajaani). The KYTKE project focused on elaborating how entrepreneurship can be brought into the traditional school system to support the development of pupils and the school community into active participants in their environment. As a result of the KYTKE project, new entrepreneurship and technology education curricula were drafted for each of the municipalities in the region, and entrepreneurship education was added into the teacher education studies at the Department of Teacher Education in Kajaani. The course was inserted into the renewed study plan in 2005 and ran for the first time in 2008 with 16 students. Since then, all teacher graduates (250 teacher education students in total) have participated in the course.

Although the wider national level priority on entrepreneurship (since 2004), and the national Guidelines of 2009¹²³ set the current framework for entrepreneurship activities, the process in Kajaani has been mainly internal; the staff of the institution has an exceptionally positive attitude towards entrepreneurship education. The internal interest

¹²² Information on the network (in English):

<http://www.enorssi.fi/hankkeet/yritytajyyskasvatus/entrepreneurship-education-1>

¹²³ Guidelines for entrepreneurship education, Ministry of Education, Helsinki University Print: 2009

Success factors

- Exceptionally positive attitude towards the entrepreneurship education of staff;
- Support by university leadership.

Lessons learnt

- Setting up of courses is not overly financially demanding, it was possible to do this in normal staff time without additional financial investment;
- Negative attitudes can be a big obstacle in the process –addressing them is often more difficult than finding money to support implementation.

was reinforced by the government programme, but there has been no financial support for the development of the course.

As to future objectives, the principal aim of teacher education is not to train entrepreneurs, but teachers. Therefore five obligatory credits and a set of 25 credits for a side-study, out of a total of 300 credits required to become a class teacher, is considered sufficient. It can be argued that a limit has now been reached on what the teacher education unit is able to do about entrepreneurship education - beyond the horizontal approach which will always continue to support the acquisition of entrepreneurship related

skills and competences in all courses. It is important for the institution to be able to offer a wide range of options for teacher education students according to their interest, while ensuring that they finish training with a better understanding of and a more positive attitude towards entrepreneurship in general and entrepreneurship education in particular.

Lessons learnt

The course developed by the Kajaani Department of Teacher Education is not particularly demanding in financial terms, while the impact has been significant. The course was developed during the normal working time of staff, and thus established without major additional investment. Lack of additional funding is often used as an excuse for not developing entrepreneurship education, while attitudes can be a much more significant hurdle in the process.

The teaching methods are highly transferable, and also the course content, though the impact depends on how teachers use the course to influence attitudes.

Further information

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University of Turku

Facts about the activity

The University of Turku, Department of Education is currently leading the implementation of a major national project on entrepreneurship education called YVI (*Yrittäjyyskasvatuksen Virtuaalinen oppimisympäristö*) which stands for Virtual Learning Environment for Entrepreneurship Education. This project is a multi-disciplinary practical development and research project which aims to.¹²⁴

- Develop a virtual learning environment for entrepreneurship education compiling methodologies for entrepreneurship education and assessment according to the level of education, but also developing networks;
- Create a dynamic model of entrepreneurship education which combines planning, implementation and evaluation;
- Improve the knowledge base of teacher educators and other multipliers about entrepreneurship education and generally enhance the understanding of entrepreneurship education;
- Support teachers to develop their pedagogical capacities in entrepreneurship education.

The project has several target groups:

- Teacher educators and other multipliers in entrepreneurship education;
- Aspiring teachers directly (or through their teachers);
- In service teachers.

The project also addresses regional and local policy makers in education as well as other stakeholders that can support entrepreneurship education such as the business community or the non-for-profit sector.

As said earlier, the project is led by Turku University, but it has a multitude of partners¹²⁵:

- Seven teacher education schools are involved;
- Three university departments of education;
- Two other universities;
- Six universities of applied sciences;
- Ten other organisations including national policy making partners (National Board of Education and Ministry for Employment and Economy).

Focus

The IVY project aims at improving the understanding of entrepreneurship education, developing approaches, methodologies and materials for entrepreneurship education for all levels of education and ultimately developing and improving entrepreneurship education in schools.

Target group: the final target group are aspiring or practicing teachers at all levels of education, but the initiative also addresses multipliers such as teacher trainers and business representatives.

Duration: summer 2010 – summer 2013

In addition to the YVI project, the University of Turku already offers several modules on entrepreneurship.

¹²⁴ IVY – Virtual Learning Environment for Entrepreneurship Education. Presentation by Jaana Seikkula-Leino and Anne Tiikkala, High Level Symposium for Entrepreneurship Education, 7-8 April 2011, Budapest. Available online : http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/pres_annetiikkala_universityofturku_en.pdf

¹²⁵ Idem

The project network covers a large share of teacher education institutions in Finland.

Entrepreneurship education in the context of this example is defined as follows:

'Entrepreneurship education is interdisciplinary civic education, which influences individual values, attitudes, skills and behaviours in a way that may eventually support different forms of entrepreneurial activity'.

Entrepreneurship education is about developing more positive attitudes towards entrepreneurship, strengthening related knowledge and skills, supporting new entrepreneurship and entrepreneurs as well as an entrepreneurial approach in the workplace and in all other activities. Entrepreneurship education is based on lifelong learning and a networked approach.

Source: <http://www.yvi.fi/yvi/yrittajyyskasvatus>

YVI is not only about creating an inventory of entrepreneurship education materials. Parts of YVI activities are seminars for a variety of audiences, including teacher educators on entrepreneurship education about the importance of entrepreneurship education and how to implement it. For example, during the May 2011 seminar ('The future of teacher education and entrepreneurial training seminar') the morning was dedicated to themes of¹²⁶:

- Why should entrepreneurship education be developed in teacher education?
- How can it contribute to the university/ teacher education institution development?
- How can entrepreneurship education be implemented in teacher education strategies and curricula?

These topics were presented and discussed by persons from a range of teacher education institutions (including universities, colleges/polytechnics) thus strengthening the message of the event. These seminars are core aspects of the YVI approach. A seminar on the theme of entrepreneurship education in teacher education is scheduled for September 2011 bringing together speakers from teacher education departments in University of Jyväskylä, University of Turku and Rauma Teacher Education School¹²⁷. Both events mentioned above received contributions from people in leadership functions in teacher education departments/units showing the high level of commitment to the topic.

The Department of Education of the Turku University offers modules that integrate entrepreneurship education into teacher education. As part of the Bachelor Degree Programme in Teacher Education, within the framework of the module on 'Teachers' pedagogical studies', aspiring teachers are offered a course called: 'Entrepreneurship and civic education' (3ECTS). Through this course students become familiar with entrepreneurship-based learning practices and the potential of applying entrepreneurship educational in basic education. Entrepreneurship and civic education are seen as an integral part of practices that promote creativity, self-motivation, social skills and courage to try something new. Students of this course also learn how to engage in cooperation with various actors in society outside the school¹²⁸. The course uses the approaches of entrepreneurship education that are being promoted combining more traditional lectures with small group teaching as well as visits (including work in an entrepreneurship incubator area¹²⁹) and individual work.

¹²⁶ Source in Finnish only: http://www.yvi.fi/media/tulevaisuuden_opettajankoulutus_ja_yrittajyyskasvatus.pdf

¹²⁷ <http://www.edu.utu.fi/laitokset/rokl/sataoppi/Yviseminaari2011.pdf>

¹²⁸ Source in Finnish only:

<https://nettiopsu.utu.fi/opas/opintojakso.htm?rid=82&idx=9&uiLang=fi&lang=fi&lvv=2010>

¹²⁹ Based on interview conducted by GHK with Jaana Seikkula-Leino on 7 April, Budapest.

Outcome / impact of the activity

One clear outcome is that after one year of existence the YVI already offers extensive material for entrepreneurship education for all types of contexts: primary and secondary education, vocational education and training, higher education and teacher education¹³⁰.

Another outcome is the interest raised by this project. As previously mentioned, the project engages in a growing network of teacher education institutions. This was not the case initially but as the information about the project was being disseminated more and more institutions expressed an interest to join. Therefore, in addition to the formal project partners, there is a range of 'observers' or silent partners who take part in seminars and expect to use the project results.

At the moment it is too early to understand the full impact of this activity as it has only been running for one year. However, as part of its activities, the project YVI is developing an evaluation approach to entrepreneurship education and several papers on this topic have already been published¹³¹. Tiikkala et al. (2010) start by observing that evaluations of the impact of entrepreneurship education on teachers' practice are rare or tend to focus on higher education. In the same article they present a case for further developing evaluation of the effects of entrepreneurship education and teachers' practice. A small-scale survey among teachers who have taken part in entrepreneurship education was carried out with the objective to identify which aspects of entrepreneurship education should be evaluated when looking at primary education. The results of this survey are being used to develop an evaluation approach that will be implemented during, and potentially after the YVI implementation¹³².

Key impact (up to date):

- Teaching material for all types of contexts (primary and secondary education, VET, higher education, teacher education);
- Development of evaluation approach to entrepreneurship education – how to measure impact on teacher practice;
- More impact to be expected in the final stages of the project.

Context and history of the activity

The setting up of the YVI project in the University of Turku needs to be seen in the broader context of:

- Policy; and
- An institutional approach.

At policy level, the initiation of this project receives funding from and through national policy making bodies (ESF budget through the National Board of Education, own budget from the Ministry for Employment and Economy). The project is an element of the strategy to implement and upscale entrepreneurship education at all levels in Finland. The University of Turku responded to a call for proposals that was framed on the topic of entrepreneurship and the university gained the support of several key actors to work on this theme.

However, prior to this financial and policy push, the university already had expertise and knowledge of entrepreneurship education. Without experienced and committed staff members, leading a project with the scale and ambition of YVI would not have been possible. University staff were engaging in entrepreneurship education and its research before the YVI project, but the allocation of funding to this project enabled the university to scale up its entrepreneurship education activities. The latter also gained importance and visibility within the institution.

¹³⁰ In Finish only: <http://www.yvi.fi/oppimateriaalit/6>

¹³¹ <http://www.yvi.fi/tutkimus>

¹³² <http://www.yvi.fi/uploads/attachment/esu2010.pdf>

Lessons learnt

The following main lessons can be learnt from this example:

- The concept and approach to entrepreneurship education differs according to the audience addressed. Entrepreneurship education in primary education needs a different approach than entrepreneurship education in vocational education and training;
- The initiative is clearly linked to the national policy on entrepreneurship education which gave a strong push for the development of entrepreneurship education in teacher education;
- The YVI develops a multi-perspective approach which meet several gaps: the gap in explanation and awareness raising about entrepreneurship education among teachers, future teachers and also teacher education institutions; the fact that a multitude of materials exist but are scattered in many institutions and depositories; and the gap in the evaluation of the impacts of entrepreneurship education on teachers' practice.
- The project also benefits from strong expertise, in-depth understanding of the topic and commitment among key staff. It is important that the activity is supported by a broader multi-disciplinary team of experts who strengthen the scientific reliability and validity of the work. They are also more likely to inspire broad acceptance across the country than projects built around a single leader.

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Hungary

Summary

In January 2009, a new formulation called 'Sense of initiative and entrepreneurship' was included in the Hungarian National Core Curriculum, together with a note on the necessary knowledge, skills and attitudes required for the development of entrepreneurial behaviour. However, no national strategy regarding the implementation of entrepreneurship education in initial teacher education is in place nor are entrepreneurship education or entrepreneurial and innovative skills and attitudes systematically embedded in the curriculum.

Two types of Higher Education institutions in Hungary provide teacher education, universities (egyetem) and colleges (főiskola). Entrepreneurship education in the form of compulsory modules within the programme, can be found at two of the 24 screened teacher education institutions. The activities in one of these institutions, **Corvinus University of Budapest**, are presented in more detail.

Background information about teacher education in Hungary

Public education administration in Hungary is characterised by its decentralisation and extensive local and institutional independence. Administrative and decision-making powers are shared at different levels, resulting in a complicated system of mixed powers and responsibilities.¹³³ The Ministry of Education has the general administrative and regulatory responsibilities of public education, such as setting criteria and conditions for compulsory education, setting the framework of operation of public education institutions and the examinations at the end of upper secondary education. The local and county governments administer pre-primary, primary and secondary education.¹³⁴

The 2005 Higher Education Act regulates the establishment and operation of universities and colleges. Hungarian higher education institutions are autonomous, state-recognised, state or non-state (church or private) institutions.¹³⁵ Public education institutions may be established and maintained by the state, local governments, minority local governments, legal entities (foundations, churches, etc.) as well as natural persons.¹³⁶ The central and highest level regulatory document of the content and learning at school, is the National Core Curriculum, which is obligatory for all schools. Its main function is to lay down the principles and conceptual basis of public education and at the same time, ensure the autonomy of schools in selecting educational content. Initial teacher education can be found in both universities and colleges. Bachelor degrees are mostly provided to studies that lead to a primary school teacher diploma, while master's degrees more often lead to a teaching diploma within secondary schools.

Hungary

The key competence 'Sense of initiative and entrepreneurship' was included in the National Core Curriculum in 2009, which is obligatory for all schools and lays down the conceptual basis of public education.

Entrepreneurship education does not yet appear to be systematically embedded in Hungarian teacher education.

Case Study:

Corvinus University of Budapest

¹³³ Eurybase Hungary, Organisation of the Education System in Hungary, 2008/2009: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/HU_EN.pdf

¹³⁴ Ibid.

¹³⁵ Hungarian Ministry of National Resources, Higher Education, The Bologna System: <http://www.nefmi.gov.hu/english/the-hungarian-higher/the-bologna-system>

¹³⁶ Eurybase Hungary, National system overviews on education systems in Europe, and ongoing reforms, 2010 edition: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/04_7_HU_EN.pdf

Entrepreneurship education within the national education strategy

In Hungary, matters concerning education on all levels have been included in the National Development Plan 2007-2013.

'Sense of initiative and entrepreneurship' was included in the National Core Curriculum in 2009, as a result of the ongoing debate at European level regarding entrepreneurship education and its importance for growth and the creation of jobs.¹³⁷ This competence is defined in line with the European Key Competence Framework and is comprised of knowledge, creativity, encouragement of changes, and risk-taking as well as developing and implementing plans in order to achieve objectives.¹³⁸

Implementation of entrepreneurship education in initial teacher education

Entrepreneurship education does not yet appear to be systematically embedded in Hungarian teacher education. Noticeably, in those teacher education institutions that provide aspects of entrepreneurship education rather than concentrate on the specific technical knowledge transfer (knowledge of economy or knowledge related to starting a business in economic contexts).

Two universities in Hungary provide entrepreneurship education within teacher education (please consult annex 4 for more details). One of these institutions provides master's courses in economics and the other one in engineering. This could be interpreted as an indication that entrepreneurship as a field of study is still strongly related to technical subjects, and that the horizontal values (skills and attitudes) of entrepreneurship have still not completely been integrated into the Hungarian higher education system.

As the websites do not provide exact figures on the numbers of students in teacher education engaged in entrepreneurship education, and as this information could not be found in national statistics, it is not possible to assess how many students undergoing teacher education are currently enrolled in entrepreneurship education.

It should be noted that the Hungarian university websites that have been screened usually provide rather limited or scarce information. Many teacher education websites lacked information about aims and learning outcomes, modules and courses included in the study programme, and about teaching methods. Consequently, the above results should be seen in the context of insufficient data, and clear-cut conclusions should not be drawn.

Website screening results:

Two universities in Hungary provide entrepreneurship education within teacher education:

Eight out of 24 universities and colleges have a creative/innovative and student-centred approach in their mission statements.

Teacher education programmes in six of the 24 teacher education institutions refer to the core aims of entrepreneurship, and six institutions refer on their website to working methods drawing on the pedagogy of entrepreneurship education.

¹³⁷ Hungarian National Core Curriculum – Ministry of Education and Culture, at the Ministry of National Resources, online at: <http://www.nefmi.gov.hu/english/hungarian-national-core>

¹³⁸ Hungarian National Core Curriculum – Ministry of Education and Culture, at the Ministry of National Resources, online at: <http://www.nefmi.gov.hu/english/hungarian-national-core>

Corvinus University of Budapest

Facts about the activity¹³⁹

The university provides a Master degree for aspiring Teachers of Economics. There are two specializations to choose from: Marketing and Commerce, and Entrepreneurial Studies. The MA programme 'Teacher of Economics: Entrepreneurial Studies' is open to anyone with a BA degree in economics, and it is not required to have a teacher degree before entering the course. Students will be prepared to teach pupils aged 15 to 18 years old, as well as students within adult education.

The programme is carried out at the Department for Economics, and at the Department for Social Sciences. Throughout the Department of Economics, there is a focus on how to start-up SMEs, while the activities at the Department of Social Sciences provide tools for learning how to provide children with flexible and open-minded thinking, focusing more on pedagogy and change of attitudes.

The programme consists of 10 percent lectures and 90 percent practical exercises, such as group work, visiting schools, and case studies. About 50 percent of the lectures and practical exercises are held by external experts from the field of business, and 50 percent by internal experts, university lecturers and professors.

At the beginning of their studies, the students have to put forward their initial goals that they would like to accomplish during their studies. When finishing the education, students should have developed a portfolio in which they note their main achievements and to what extent these correlate with their initial goals.

Outcome / impact of the activity

There are several obvious outcomes of the programme: students gain increased self-confidence, and increased motivation to learn and explore possibilities. There is a clear increase of creativity among the students, as well as a more positive attitude towards change. Generally, students become more open-minded after completing the studies.

Around 90 percent of students enrolled in the programme finalize their studies. Surveys are conducted on a regular basis to measure outcomes. An attitude change became apparent among at least 80 percent of the students. Additionally, there are focus group exercises/meetings every second year to study and understand attitudes towards the teachers in the programme, teaching material, and practical exercises.

To measure the achievements of the students, so called micro-teaching has been introduced. Micro-teaching means that students are recorded on video when trying out teaching, to later be able to analyze their teaching style, together with their own mentor –every student is entitled to have a mentor throughout the study period. In this way, there is a constant evaluation of the student teachers. E-learning, interactive boards, micro-teaching and digital cameras are frequently used in the evaluation of student teachers.

Focus

Corvinus University of Budapest provides a master's degree for aspiring teachers of economics who want to specialize in entrepreneurial studies.

The focus is on the knowledge necessary for the start up of small businesses as well as on pedagogical skills and an entrepreneurial teaching attitude.

¹³⁹ The information in this case study is entirely based on an interview with Dr. Éva Bodnár – Director of the Department of Teacher Education – Teacher of Economics Department, conducted by GHK in April 2011.

Context and history of the activity

The 'Teacher of economics' MA programme has been taught at Corvinus University since 1997-1998. The programme duration is five years; during the three first years all students undertake the same subjects, and in the fourth and final year students are entitled to specialize in entrepreneurial studies.

Since the implementation of the Bologna process in Hungary in 2008-2009, the structure of several teacher education programmes has changed, including the one at Corvinus University. Before the Bologna process, students could attain a degree in teaching (general teacher diploma) and an additional degree in economics. The harmonization with the Bologna process, however, requires that students acquire a single combined degree to become a teacher of economics.

Narrowing down the options in this way has led to fewer applicants for the MA programme 'Teacher of economics: entrepreneurial studies'. This in turn, has forced the university to re-shape the teacher education programmes. Due to fewer applicants these programmes are now only provided as distance learning courses with class gatherings on Fridays and Saturdays.

The MA programme 'Teacher of economics: entrepreneurial studies' is not funded by the Hungarian State and therefore it is dependent upon financial support. At the moment the programme is funded through EU Structural Funds; making entrepreneurship a subject in higher education programmes is as a goal in Hungary's National Development Plan for 2007-2013.

Lessons learnt:

- Studying entrepreneurship and dealing with issues of risk-taking and innovation at the university has proven to be a good way of increasing student teachers self-confidence and open-mindedness;
- Public support for entrepreneurship education is wide;
- The programme needs state funding to survive on the long run.

Lessons learnt

University representatives call for entrepreneurship education in Hungary as there is a need to increasingly motivate students to become more innovative and willing to put their ideas into action. The socialist past of Hungary and the fast transition to a market economy caused insecurity regarding economic issues. Moreover, increasing inequality caused a negative perception of entrepreneurship. Studying entrepreneurship and dealing with issues of risk-taking and innovation at university is regarded as a good way of teaching young people to not to be 'afraid' of economics and handling money.

Public support for entrepreneurship education is wide, but the study programme will be difficult to maintain in the long run without state funding.

Further information

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The Netherlands

Summary

Education policy in the Netherlands is governed at the state level by the Ministry of Education, Culture and Science. Decisions on the delivery and administration of education are undertaken by schools themselves. Entrepreneurship education has been emphasised in Dutch policy since 2000. In 2007, the 'Entrepreneurship and Education' programme sought to develop entrepreneurship education further through the delivery of entrepreneurship projects at all levels of education as examples of good practice. Further impetus was provided by the 2009 Action Programme for Entrepreneurship and Education including centres for entrepreneurship, national certificates of entrepreneurship and educational entrepreneurship networks.

In the Netherlands, many indications for activities related to entrepreneurship education have been found. Eight of 27 universities mention entrepreneurship education in the context of their initial teacher education programmes. A total of 14 institutions refer to entrepreneurship education in their mission statements whilst six offer extracurricular activities relating to entrepreneurship education such as student companies (please consult annex 4 for more details). The activities of two institutions are presented in more detail. At HAN University of Applied Sciences, several projects are implemented. At Avans University of Applied Sciences, a horizontal approach is pursued.

The Netherlands

Dutch Ministries have been encouraging entrepreneurship in education since 2000. An 'Action Programme for Entrepreneurship Education' was set up in 2007; many universities pursue very broad approaches.

Case Studies:

Avans University of Applied Sciences, Breda
HAN University of Applied Sciences, Nijmegen

Background information about teacher education in the Netherlands

In the Netherlands, both public and private education exists. Since, according to the Dutch constitution, every citizen has the right to found schools and provide teaching based on religious, ideological or educational beliefs; besides public schools, there is a wide variety of privately run schools. The majority of Dutch pupils (70%) attend a private school. Private schools are free to determine what subjects are taught, and in what manner – within the boundaries of the qualitative standards set by the Ministry of Education, Culture and Science in educational legislation.¹⁴⁰

Public and private schools have the same status. Government expenditure on public education should be matched by spending on private education (allocated according to the number of students). A distinctive feature of the Dutch education system is the combination of a centralised education policy with decentralised administration and management of schools - which is undertaken at school level.¹⁴¹

Aspiring Dutch teachers can choose to enrol in a four year bachelor (B.Ed), masters (M.Ed) or post-graduate course (ULO) for their initial teacher education. Programmes are primarily broad by nature, with little specialisation apparent. Lateral entry has recently been introduced which provides the opportunity for students from other faculties, with experience of professional work, to train to become teachers through a two-year period of work experience and tests of aptitude, leading to a full qualification.

¹⁴⁰ EURYDICE (2010) 'National Summary Sheet on Education Systems in Europe and ongoing reforms – the Netherlands' URL:

http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_NL_EN.pdf

¹⁴¹ Ibid.

Following the completion of the teaching course, teachers are bound by the competences developed by the Association for the Professional Quality of Teachers (SBL) as part of the Professions in Education Act of 2004.¹⁴² Here, key competences have been identified which include the development of entrepreneurial capacity. At primary level, for example, teachers should have the pedagogical competences to ensure that pupils are aware of how much they can achieve through their own initiative.¹⁴³

Entrepreneurship education within the national education strategy

Dutch ministries have been encouraging entrepreneurship in education since 2000.¹⁴⁴ The Ministry of Economic Affairs and the Ministry of Education have developed an 'Action Programme for Entrepreneurship and Education' (Actieprogramma Onderwijs en ondernemen) published in 2009, setting objectives up to 2011 to enhance both the number of institutions that have integrated entrepreneurship into their policy, organisation and curriculum and the numbers of students who show entrepreneurial behaviour.

The Entrepreneurship Education Action Programme of 2009 was in part, a development of the 2007 programme 'Entrepreneurship and Education' which provided subsidies to projects which developed entrepreneurship education across all levels of education. A number of schemes are visible which seek to improve the development of entrepreneurship education – for example, in 2008 six centres for entrepreneurship were developed in partnership between universities and higher vocational education institutions to develop additional enthusiasm for entrepreneurial behaviour. An evaluation of the activities, conducted in 2010, shows that the number of students wishing to become an entrepreneur has increased significantly during the last three years (from 13% in 2007 to 23% in 2010).¹⁴⁵

'Action Programme for Entrepreneurship and Education' (Netherlands, 2009):

- Integration of entrepreneurial competences in Professions of Educations Act 2004;
- Successful course program for teaching staff and principals by SLO;
- Centres for entrepreneurship;
- Enhanced cooperation of the educational sector with the business community.

Concerning teachers, an 'Entrepreneurship training program' has been developed in collaboration with the Netherlands Institute for Curriculum Development (SLO), aiming at a more enterprising teaching staff. The SLO aims at teaching staff and principals in primary and secondary education. Two- to four- day-courses for teachers in-service have been developed.¹⁴⁶ The courses intend to raise awareness about entrepreneurship education and seize opportunities which can be implemented in teaching methods. The participants are invited to look beyond their organisation and use external factors as an added-value for their courses ('Close the textbooks and involve partners from outside schools'). Over the past year, 400 teachers and 50 principals were trained.

Knowledge, skills and attitudes are taken into account and considered as a focus point of the trainings. Prior to the training, the participants are invited to take an 'entrepreneur

¹⁴² Association for the Professional Quality of Teachers (SBL) (2004) 'Good Quality teachers for good quality education' URL: http://www.bekwaamheidsdossier.nl/cms/bijlagen/brochure_SBL.pdf

¹⁴³ Association for the Professional Qualities of Teachers, gives information about the 'Professions in Education Act' (BIO) and the required competences. Ibid. SBL

¹⁴⁴ SenterNovem (2009) 'Action Programme for Entrepreneurship and Education' (Actieprogramma Onderwijs en ondernemen) URL: http://www.onderwijsonderneemt.nl/english/action_programme_education_and_entrepreneurship

¹⁴⁵ These include Gerderland Onderneemt! (GO!); Holland Program on Entrepreneurship (HOPE); Maastricht Centre of Entrepreneurship; Cooperatie Amsterdamse scholen voor Entrepreneurship (CASE); Dutch agro-food Network of Entrepreneurship (DAFNE); Centre of Entrepreneurship in the Creative Industry.

¹⁴⁶ Welp, Eric / Perez, Gemma Corbalan: Being 'entrepreneurial' is about behaviour. www.buitenkans.nl

test' developed by Groningen University. The test results put forward a profile of the participant indicating whether s/he has a high or low degree of creativity, innovation or dominance. Based on this individual profile, the courses address the strengths and weaknesses of the participants. At the end of the training, participants are asked similar questions – therefore, the test also serves as an assessment of the training by the participants.¹⁴⁷

The business community takes part in these activities as they give the trainings, recruit educational institutions and develop the programme. The synergy that results from this cooperation is of the utmost importance. Moreover, there are cooperation networks with educational institutions like PABO Doetinchem and HAN University. SLO cooperates with those institutions in order to implement courses with respect to entrepreneurship education. The research partners include the Amsterdam Centre of Entrepreneurship (ACE) at the University of Amsterdam and Wageningen University.¹⁴⁸

Implementation of entrepreneurship education in initial teacher education

One of the key elements of the ministry programme on entrepreneurship education (see above) is to continuously invest in entrepreneurship and entrepreneurial skills from a very young age and as a cross-curricular, cross-level subject. Consequently, the activities found pursue a horizontal approach. Noticeably, entrepreneurship education in teacher education is more likely to be found in universities of applied sciences – this might be due to the fact that those institutions tend to have a more practical understanding of the needs of the labour market and do not aim at a classic academic education.

In many universities, students are also provided with the opportunity to acquire a certificate of entrepreneurship (Minor in entrepreneurship, 30 ECTS points), an initiative developed further by the 2009 action programme – with the objective of developing a National Entrepreneurship Certificate which focuses on knowledge and attitudes from middle vocational education to university. These minors are not focused on teacher education and generally are offered by other faculties (economics), but are open to student teachers. However, additional research showed that the 'minor' is not specifically advertised among student teachers and thus not very well known among them.

For the Netherlands, 25 institutions and 49 programmes¹⁴⁹ have been screened. The eight institutions identified as providing entrepreneurship education describe themselves as innovative institutions, often emphasising their external outlook, either in terms of having a global/ international perspective or engaging with external businesses or partners. A number of universities make references to business partner organisations for entrepreneurial learning or connections to the business world, whilst others focused on their student-focused or innovative activities.

Website Screening results:

Eight institutions in the Netherlands provide entrepreneurship education, for instance the 'Minor in entrepreneurship' program – it has not always been clear if there are activities specifically for teachers, though.

Fourteen teacher education institutions take entrepreneurship education principles into account through reference to core values in their mission statement.

Six institutions engage in extracurricular activities, including student companies, minors in entrepreneurship or summer school activities.

¹⁴⁷ Information based on a interview with Eric Welp, Curriculum developer at SLO, Chairman at GrijpdeBuitenkans, e.welp@slo.nl, conducted by GHK, 15 April 2011.

¹⁴⁸ Interview with Eric Welp, *ibid*.

¹⁴⁹ For the Netherlands, different pathways to become a secondary teacher specialized on a combination of different subjects have been counted as one programme and the existence entrepreneurship education has been cross-checked.

Avans University of Applied Sciences

Facts about the activity ¹⁵⁰

Avans University of Applied Sciences has committed to entrepreneurship education and integrated it into their day-to-day activities. Entrepreneurship education is seen as a concept entailing a broad range of activities, rather than solely being understood in the sense of 'doing business'.

'Our student teachers should adopt an exploratory mindset and be able to design educational programmes based on thorough reflection, innovation and creativity. The institution believes that it is of importance for their students to stay connected to their social responsibility. Reflection, design and social responsibility can be achieved through various ways. We believe that these skills are a basic necessity for future teachers and therefore we attach great value to develop them. As a future teacher, they can transfer these skills to children, and there lies the real added-value.'¹⁵¹

The Teacher Education for Primary Schools Department (PABO) integrated the concept of 'exploratory mindset' into their curriculum in 2006/2007. In this context, several methods, activities and projects from the field of entrepreneurship education are implemented in the curriculum. The assignments can vary from a one-hour presentation

Focus

- Concept of developing an 'exploratory mindset'
- Project work throughout the curriculum to foster independent working
- 'Day for Change' project – students develop business ideas with children in primary school

on a given topic or a one-day seminar on language and maths to a project that needs to be carried out throughout the whole academic year. Another example includes a global showcase exhibition which is organised by the students.

In the **first year**, the student teachers become acquainted with social responsibility and their role as teachers in society. Several activities are integrated into the study programme to make them aware of society and the external environment at large. The students are stimulated to look beyond the classroom.

Lectures and movies are two examples of methods of delivery. This is part of the basic educational programme, thus a compulsory part of their studies.

In the **second year**, the student teachers undertake internships at primary schools. They are assigned to a class and together they participate in the 'Day for Change' project, an educational concept for children in primary education to have first experiences with entrepreneurship and the entrepreneurial mindset. Per class, the children receive 20 EUR, which they have to use to set up their own business. The student teacher is in charge of guiding the class on topics such as sales or public relations, sending out invitations and coming up with creative ideas to inspire and encourage the children to adopt this entrepreneurial mindset. The profit that is made is donated to the Day for Change Foundation which grants micro-credits to women in developing countries. Avans was the first PABO in the Netherlands to embrace this concept and to integrate it into their curriculum in 2009.

During the **third year**, the students participate in three longer projects which are designed to stimulate their ability to work independently and are seen as an important feature of an entrepreneurial mindset. Besides these larger projects, there are several smaller assignments such as the organisation of a presentation or a conference.

¹⁵⁰ The information is based on an interview with Mrs. Nicole van Son-van Emmerik, Principal of PABO (education for primary education student teachers) of Avans University of Applied Sciences, conducted by GHK in April 2011.

¹⁵¹ Interview with Mrs. Nicole van Son-van Emmerik, *ibid*

In their **final year**, the student teachers undertake an internship at a primary school in which they have to set up a project of their own choice. They have to demonstrate their teaching skills, apply creative teaching methods and show their social responsibility and outward looking view. The students are also in charge of their own personal development plan, an instrument that is designed to help them to identify their professional goals and objectives.

The activities are compulsory for all student teachers.

Outcome / impact of the activity

The student teachers appear to acquire an exploratory attitude based on reflection and creativity. They question ideas and concepts in a respective manner, and put new ideas forward. The entrepreneurial mindset that is adopted through the course of the programme influences the students' teaching methods and the way in which they design their teaching curriculum. Avans succeeded in involving the local business community in their entrepreneurship education activities. In the 'Day for Change' project, several business professionals give lectures in schools. This partnership is still in the early stages of cooperation though, and will be further developed.

Lessons learnt

In the case of Avans University, a top-down decision by the university administration was made to integrate entrepreneurship education into their educational programme. The concrete way of implementation and programme delivery is decided in the teacher education faculty or by the individual teachers. It appears to be working well and has thus become a valued concept.

Two factors are important for the long-term success of the concept. Firstly, training for the teaching staff needs to be established. The staff should be made more familiar with entrepreneurial skills as this will facilitate their own teaching methods vis-à-vis student teachers. Secondly, the partnership with primary schools needs to be intensified. It is important to further promote the idea among partner schools and student teachers, that the profession of teaching is about dynamics rather than about static knowledge. It should be part of a teacher's basis attitude to be constantly on the lookout for improvements, new knowledge and new solutions.

Key impact

- Students improve their ability to design lessons and apply new educational methods;
- Involvement of local business community; institution improved its network.

Lessons learnt

- Training of the teaching staff needs to be established - staff need to be trained on entrepreneurial skills and methods;
- It takes time to convince external partners (in this case primary schools) to fully commit to the 'teacher of the future' concept and thus to entrepreneurship education.

Further information

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HAN University of Applied Sciences

Facts about the activity¹⁵²

The Dutch city of Arnhem and its surrounding areas have a long tradition of innovation in the field of science and technology. HAN University of Applied Sciences (Hogeschool van Arnhem en Nijmegen) has integrated entrepreneurship education in their teacher education programme as they consider entrepreneurial skills to be of paramount importance to ensure a continuous high level of innovation in the region.

'Children are entrepreneurial by nature. As it were, they are budding entrepreneurs. One should cherish, stimulate and develop this attitude by providing them with knowledge and skills. As a result, children will be well prepared for society. Teachers play an important role in the way these children are encouraged to develop their entrepreneurial attitude. Hence, the entrepreneurial mindset and skills of student teachers and their training staff should be encouraged by equipping them with a set of skills, but also by putting them in contact with other disciplines.'

Taken from: Programme of activity for 'Ondernemers in de Dop'

Together with several local entrepreneurs, HAN University takes part in a 'learning network' led by FabLab Arnhem,¹⁵³ an educational innovation centre aiming at inspiring the entrepreneurial mind of students, student teachers and teaching staff. To date, three activities have been put forward in the context of this network.

Training of teaching staff

To ensure that all the trainers and team members adopt the same vision and have sufficient knowledge and skills to start working on FabLab Arnhem, they follow training on entrepreneurship and the basic course 'How to make almost anything'. The training provides the trainers with tools which allow them to anchor entrepreneurship into the curriculum. The activity will start running as of November 2011.

Curriculum development

The project team is developing a curriculum centred on so-called combi-internships. Through inter-faculty cooperation – faculties of education, technology, economy and management – students of various educational programmes are working via internships in primary schools on the development of products for education. Together they work on assignments for the internship school, in close consultation with staff at the internship school and teaching staff. The products developed are dedicated to entrepreneurship, sustainability and science and technology. The activity takes place once a year at a special location via 'guerrilla marketing.' Initially, five pilot internships will be undertaken after which a strategic programme will be designed.

Past experiences have indicated the added-value of combi-internships between student teachers with technology students. HAN aims to bring student teachers together with students from other departments, such as economics and management. Ideally, this will lead to an increased degree of knowledge in economics and management and as a result, in entrepreneurship among student teachers.

Focus

The Dutch city of Arnhem wants to preserve its status as a centre of innovation. HAN University takes part in a local 'learning network'. The outcomes so far include:

- Concepts for the training of teaching staff;
- Curriculum development;
- A programme called 'Budding Entrepreneurs' that is conducted in cooperation with primary schools.

¹⁵² The information is based on an interview Maarten Hennekes, Project Manager of 'Ondernemerschap in de Dop' (Budding Entrepreneurs) and member of the teaching staff at HAN University, conducted by GHK in April 2011.

¹⁵³ Information on FabLab Arnhem (in Dutch) is provided at: <http://www.fablabarnhem.nl/>

Programme 'Ondernemers in de Dop' ('Budding Entrepreneurs')

'Budding Entrepreneurs' aims at stimulating and developing an entrepreneurial attitude among primary school children. According to HAN, the world is inviting children to participate and at the same time, offers them a stage to present their work. So the programme is developing a challenging programme for children where they are offered the possibility of running a 'real' business to create products. Currently HAN is elaborating on the programme, but they have already started implementing a pilot project in a primary school where the children are designing fashion - as Arnhem is a city where the fashion industry plays an important role. A key feature of the project is the involvement of real-life entrepreneurs. Only recently, children teamed up with fashion designers in studios and stores to get an idea about what designing means. The entrepreneurs provide the primary school children with a real assignment, and the ideal situation would be that entrepreneurs actually use the children's products. Another example could be setting out a track on an iPhone with beautiful sights in Arnhem or projects in the realm of recreation, tourism, care, energy and water.

The pilot project will be running until 2013. Throughout this project, the participating student teachers experience types of entrepreneurship education and are trained to use their own entrepreneurial skills and knowledge for teaching purposes. They have a key role in guiding the learning process of the primary school children and in the development of the teaching materials.

HAN is cooperating with the local centre for entrepreneurship, which offers 'minor' courses in the area of entrepreneurship. However, the Centre for Entrepreneurship is not closely working together with the teacher education programme on integrating entrepreneurship education. The integration of entrepreneurship education is mainly done via the three key activities. In addition, there are a number of other activities that are related to entrepreneurship education and are part of the basic curriculum. Students are assigned with certain tasks or projects. For example, student teachers are required to develop a one-day programme in the area of science and technology. Moreover, an educational visit to the Dutch island of Texel is organised, where the student teachers develop lessons for natural science in cooperation with the local centre for the ecological preservation of the Wadden and the North Sea.

Outcome /impact of the activity

HAN would like student teachers to be able to teach primary school children relevant skills and knowledge that are of use to them in twenty years from now. It has shown that entrepreneurship education has a positive effect on the student teachers as they learn to

be innovative, put forward new ideas and take initiative. Overall, they put their entrepreneurial mind to work and base their teaching methods upon this. The institution has received positive feedback from primary school teachers where the student teachers have conducted internships.

Key impact

- Student teachers learn to be innovative, take initiative and put forward new ideas for teaching;
- Positive feedback from internship providers about students' performance;
- The teaching staff report that the new approach allows for more freedom and gives room to take risks as they are allowed to fail or make mistakes;
- More cooperative and dynamic working atmosphere between teachers and students.

The teaching staff indicated that entrepreneurship education allows for more freedom for innovation. New methods can be tested and there is more room for risk-taking as they are allowed to fail or make mistakes. This results in a high degree of dynamics. Moreover, the teaching staff gets more opportunities to cooperate intensively with student teachers. As a result, the dynamics between student and teacher changes and they become more of a team.

Lessons learnt

An exploratory and entrepreneurial attitude together with inter-faculty cooperation, lies at the foundation for the integration of entrepreneurship education at HAN. HAN considers it of the utmost importance that the approaches developed are linked to the local environment and the local community.

Enthusiasm and commitment are the key factors of a successful implementation of entrepreneurship education. Teaching staff should share a common vision on welcoming the new generation in our society. Moreover, the interaction between respective schools, higher education institutions and the world of work, should be strengthened and a higher degree of networking should be aimed for. Bringing down invisible barriers between schools and the external environment is a focus point.

Sustainability is also considered to be an important concept. HAN is ready to share its experiences, concepts and methods in order to pave the way for future generations – which is a common interest of the educational community and the rest of the society. Open-source concepts of dissemination and interdisciplinary work are key factors in this regard.

Success factors

- Dedicated staff;
- Inter-faculty cooperation;
- Interdisciplinary cooperation with external partners;
- Links with local business community;
- Sustainability and mainstreaming of concepts by sharing experiences, concepts and methods.

Further information

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Norway

Summary

Norway has a well-developed and widely implemented policy to increase entrepreneurship and entrepreneurial behaviour in the whole educational system, covering pupils and teachers in primary and secondary education as well as students at higher education institutions.

The first Strategic Plan for Entrepreneurship in Education: 'See the Opportunities and Make them Work', with the aim of fostering a culture for entrepreneurship, was launched in 2004 for a four year period. It was revised in 2006, and linked to a knowledge promotion plan. The strategic plan covered the entire educational career from primary school to college and university, including teacher education. The document was prepared in collaboration between the Ministry of Trade and Industry, the Ministry of Education and Research and the Ministry of Local Government and Regional Development.

With an increased focus on entrepreneurship within the educational system, not least within teacher education, the Norwegian Government launched its second Strategic Action Plan for Entrepreneurship within Education: Entrepreneurship in Education and Training - from compulsory school to higher education 2009–2014, in September 2009. This new strategy focuses mainly on entrepreneurship education in higher education, while also dealing with research and the commercialization of products.

Many Norwegian higher education institutions have included entrepreneurship as a compulsory module or as an elective course in teacher education programmes. Four activities are presented in more detail. The **University of Nordland in Bodø** implemented an elective module within teacher education called 'Pedagogical entrepreneurship' and an 'Incubator' project aimed at primary schools. At **Oslo University College**, aspiring art and design teachers experience a compulsory two-day long entrepreneurial camp and a six-week long module called 'Entrepreneurship'. **Sogn og Fjordane University College** has implemented a project 'Rural Entrepreneurship Through Action Learning' (REAL) in teacher education and **Hedmark University** developed a programme which aims at teacher trainers.

Background information about teacher education in Norway

The Ministry of Education and Research is the administrative agency in charge of educational matters. It is also responsible for implementing national educational policy. A national curriculum is in place to help ensure that government educational standards are met. The national curriculum consists of a core curriculum for covering the entire educational structure, principles and guidelines covering parts of it, and curricula for individual subjects.¹⁵⁴

Norway

Strategic Plan of 2004, was revised in 2006, evaluated in 2008 and re-launched in 2009.

High level of activity, most teacher education institutions have modules on entrepreneurship education on offer or use innovative methods in teaching.

Case Studies:

Hedmark University
Oslo University College
Sogn og Fjordane University College
University of Nordland in Bodø

¹⁵⁴ Eurybase Norway, Organisation of the education system in Norway – 2009/2010
http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/NO_EN.pdf

Aspiring teachers in primary and secondary education can either follow:

- A four-year general teacher education programme; or
- A four year programme that differentiates between primary and lower secondary level.

Students aiming at a qualification as subject specialist can either follow:

- A subject teacher education (three-year and four-year) that qualifies for the teaching of specific subjects at primary and secondary school; or
- An integrated master's degree (five-year) that qualifies for the teaching of certain subjects from the fifth year of primary school on, in upper secondary school and adult education.

Students who already have three to five years of university or university college education can follow:

- A one-year programme in educational theory and practice – that qualifies for teaching from the fifth year of primary school, upper secondary school and adult education.

Teacher education is provided by university colleges as well as by universities.

Entrepreneurship education within the national education strategy

Entrepreneurship in primary and secondary education and training is mentioned in the National Curriculum for Knowledge Promotion in Primary and Secondary Education and Training. Entrepreneurship for both compulsory education and for upper secondary education and training is embedded in the Core Curriculum, the National Quality Framework and in various subject curricula.¹⁵⁵

In 2004, the Norwegian Ministry of Education and Research, the Ministry of Trade and Industry, and the Ministry of Local Government and Regional Development presented to the government the first national strategy for entrepreneurship education, named: 'See the opportunities and make them work'. Entrepreneurship education has been designed to help renew education, adapt it to contemporary needs and create quality and multiplicity in order to foster creativity and innovation.¹⁵⁶

The plan received national and international appraisal. In 2008, the preliminary results were evaluated. It turned out that the strategy successfully initialised the implementation of the core aims of entrepreneurship. To ensure continuity, the further development of the integration of entrepreneurship in the education sector was regarded as pivotal.

The following measures were highlighted:

- strengthening the competences of teachers and school leaders;
- developing teaching aid and guidance material;
- improving general knowledge and research;
- developing an action plan and budget.¹⁵⁷

¹⁵⁵ Ministry of Education and Research online at: <http://www.regjeringen.no/en/dep/kd/Selected-topics/compulsory-education/strategic-plans/Action-plan-Entrepreneurship-in-Education-and-Training---from-compulsory-school-to-higher-education-20092014-.html?id=594388>

¹⁵⁶ Strategic Plan 'See the Opportunities and Make them Work! Strategy for entrepreneurship in education and training 2004 – 2008': Ministry of Education and Research/ Ministry of Trade and Industry/ Ministry of Local Government and Regional Development.

¹⁵⁷ Presentation by Una Sjørbotten, Innovation Norway, at High Level Symposium on Entrepreneurship Education, 7-8 April, Budapest.

Following these recommendations, the Norwegian Government launched a new action plan on the topic, called 'Entrepreneurship in Education and Training - from compulsory school to higher education 2009–2014', in 2009. Since then, this strategic plan has pointed at directions to embed entrepreneurship in education in general and in higher education in particular. The action plan is now also supported by the Ministry of Research and Higher Education.

'Entrepreneurship in Education and Training - from compulsory school to higher education 2009–2014', Norway, 2009

The strategy aims at profiling entrepreneurship as an educational objective and training strategy, and the goal is to strengthen the individual's ability to see and exploit opportunities in an economic, social and cultural context.

Funding is provided for the development of teacher education programmes in the field of entrepreneurship education (initial teacher education and continuing education).

The overall purpose of the current strategy for entrepreneurship in education is to profile entrepreneurship as an educational objective and training strategy, and the goal is to strengthen the individual's ability to see and exploit opportunities in an economic, social and cultural context.¹⁵⁸ By providing an action plan for entrepreneurship in education, the government aims at motivating educational institutions, counties and municipalities to -together with industry and other relevant stakeholders in the local environment - steadily establish training in entrepreneurship.¹⁵⁹

The 'National Curriculum for Knowledge Promotion' contains expectations that pupils and apprentices have acquired competence linked to entrepreneurship. The Norwegian Directorate of Education and Training provides funding to the development of teacher education programmes in the field of entrepreneurship education, with a special focus on:

- developing courses where training in entrepreneurship is integrated in the teacher education programme with a focus on pedagogical principles and appropriate tools; and
- offering supplementary education courses, in-service training schemes, experiences exchanges or other types of competence development for in-service teachers primary and secondary education.¹⁶⁰

Implementation of entrepreneurship education in initial teacher education

Teacher education institutions have gradually incorporated the core aims of entrepreneurship in the programmes they provide, aimed at fostering an entrepreneurial attitude among future teachers.

During the latest years, and especially since the first strategic action plan on entrepreneurship education, the whole educational sector in Norway has gone through a major transformation when it comes to embedding an innovative and entrepreneurial approach in education. In 2008, 21 of the state universities and university colleges reported that they offered programmes of study in entrepreneurship, varying between individual courses to complete master's degree programmes. Among these were courses and degree programmes for teachers, economists, technologists and the tourism field as well as cross-disciplinary courses.¹⁶¹

¹⁵⁸ Government Offices Norway, online at:

<http://www.regjeringen.no/upload/KD/Vedlegg/Grunnskole/Entrepreneurship%20in%20Education%20in%20Norway..pdf>

¹⁵⁹ Ibid.

¹⁶⁰ The Norwegian Action Plan on Entrepreneurship in Education - *Entrepreneurship in Education and Training - from compulsory school to higher education 2009–2014*:

<http://www.regjeringen.no/upload/KD/Vedlegg/Brev/Action%20Plan%20for%20Entrepreneurship%20in%20Education%20and%20Training%202009.pdf>, p. 14

¹⁶¹ The Norwegian Database for Statistics on Higher Education: <http://dbh.nsd.uib.no/>

In the individual curricula of the teacher education institutions that have been screened for this study, abilities clearly linked to entrepreneurship education have been frequently used when describing the overall learning outcomes of a particular programme. Such abilities include responsibility for learning, self-awareness, individual responsibility, cooperation, sense for development and change to meet future challenges, motivation, reflective-analytical mindset, problem solving capacity and capacity to develop curricula.

The subject as such, is integrated into several teacher education programmes, as compulsory or elective modules or courses, and the entrepreneurial and innovative approach can be found in more than half of the institutions (please consult annex 4 for more details). Skills and attitudes relating to entrepreneurship education are included in programmes for teachers in both primary and secondary education. There is also a broad variety of pedagogical methods used in teacher education. These include field visits, co-operative learning, practical exercises, problem-based learning, group and peer work, discussion groups, pedagogical drama, role play, single discipline and interdisciplinary projects that require collaboration between students, and study tours.

In Norway, entrepreneurship education within teacher education is, rather than a specific subject, understood as a comprehensive approach within educational development to foster an innovative, creative and entrepreneurial mindset among future teachers.

Website screening results:

Four universities provide compulsory modules in entrepreneurship within a teacher study programme.

Three universities and nine university colleges provide entrepreneurship education for students of economics, business and marketing, but not in teacher education programs.

Ten teacher education institutions take the principles of entrepreneurship education into account by referring to the core values in the teacher education curricula or by providing training by methods drawing on the pedagogy of entrepreneurship education.

Four universities engage in extracurricular activities such as collaborations with the business sector.

University of Nordland in Bodø

Facts about the activity¹⁶²

The University of Nordland in Bodø has had a framework for pedagogical entrepreneurship since 2006. This framework is based on initiatives from the national government, experiences with several entrepreneurial projects – from primary school up to teacher education – and, as a main factor, initiatives and programmes initiated by the local authorities in Nordland County.

In the teacher education department at the University of Nordland in Bodø, two initiatives related to entrepreneurship education in teacher education are implemented:

- an elective module called pedagogical entrepreneurship; and
- a project called Incubator.

Focus

- Elective module 'pedagogical entrepreneurship'
- Incubator project: peer learning activity of experienced teachers disseminating entrepreneurship education methods to primary schools

The university has also created a more entrepreneurial-oriented bachelor's programme and opened a new centre for pedagogical entrepreneurship (SPent).

In the module '**Pedagogical entrepreneurship**', the university college cooperates with the county of Nordland, which, in the context of its regional development strategy, pursues the aim to improve competence in basic education with regards to work areas, economy and participation.¹⁶³ The target groups of the activity are teachers and student teachers with at least a bachelor degree in teaching, in participating municipalities in Norway and Sweden. The module is comprised of 30 ECTS credit points.

The module 'Pedagogical entrepreneurship' aims at several comprehensive objectives, among others:

- to gain greater knowledge and understanding of entrepreneurship as a learning method and educational goal in schools;
- to gain insight in methods to develop active schools and communities;
- to encourage greater interaction between schools, communities and local labour; and
- to contribute to the long-term development of the region.

Besides lectures and literature studies, creative methods like group work and practical exercises related to concrete challenges in the local schools and communities, are applied.

Within the **Incubator** project, a group of five to seven experienced teachers (including a headmaster) are 'touring' by providing basic entrepreneurship education to primary schools. Student teachers may participate in the activities as part of their practical training. The project may be seen as a form of peer learning. Teachers disseminate their experience with established entrepreneurship education methods, for instance the idea of 'pedagogical enterprises'. Students between the age of six to eighteen are supposed to find an area in their own community in which they can 'invest' – for instance by farming and selling their own products. The idea is to show how one can take individual responsibility for creating job opportunities. Another method is the so-called 'creativity workshop'. In this workshop, pupils are supposed to create something new out of

¹⁶² The information is based on an interview with Ove Pedersen, Assistant Professor at Bodø University College, conducted by GHK in May 2010.

¹⁶³ Home page of the University of Nordland

<http://www.hibo.no/index.php?ID=11253&lang=nor&displayitem=1792&module=studieinfo&type=studieue&ubtype=1>

collected waste and invent a name and a purpose for their product – a method that has shown to be very popular. The University of Nordland also organizes field trips for students to visit enterprises that cooperate with the university and supports partnership programmes between local enterprises and the local school system.

Context and history of the activity

The teacher education institution in Bodø was one of the first institutions in Norway providing entrepreneurship education within teacher education. In 1982, when the first course was set up it was called '*Work and learning*' and it was created as a 'bottom up' project for teachers in the Nordland community. The course focussed on trying to increase cooperation between the school and working life, and to support regional development. Afterwards, a national programme for enhancing cooperation between the communities and students was formed, including local courses for a wide target group consisting of teachers, artists, entrepreneurs, farmers and social workers.

In 2006, the local authorities in Nordland County decided to start a new programme with the aim of starting new enterprises and creating new job opportunities. The programme was funded by the Norwegian Central Government. This new type of investment was developed in response to the trend of Nordland inhabitants moving to more central regions due to a lack of job opportunities. The idea behind this new programme was to stimulate Nordland inhabitants to create new job opportunities in their own community; schools played a significant role in this initiative.

Outcome / impact of the activity

It has shown that the Incubator project is highly effective in disseminating knowledge, skills and attitudes of entrepreneurship education. The impact of the project is measured in so-called dialogue seminars. The results show that the participating teachers, school pupils, and university students gained greater belief in their own capacities (enhanced self-confidence), increased creativity and acquired a more positive attitude to risk-taking.

Since the activities related to entrepreneurship education have proven to create an added value for both the university and the students, a new horizontal approach to entrepreneurship education is currently under development at Nordland University. The main idea is to include entrepreneurship as an overall theme within all subjects in teacher education.

The focus on stimulating creative, innovative and entrepreneurial initiatives in Nordland County and at the University of Nordland has generated good results in terms of enhanced knowledge about entrepreneurship among teachers and students. New entrepreneurship projects are starting up regularly. New working methods among primary school teachers and primary school pupils have led to more entrepreneurial activity in the whole community of Nordland, which in the long term, is expected to bring about new job opportunities and a higher number of people with an entrepreneurial mindset staying and finding work in their own communities.

Key impact

- Peer learning activities are a highly effective way to disseminate successful methods;
- Enhanced entrepreneurial activity in the county;
- University aims at implementing the horizontal approach in 2011.

Further information

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Oslo University College

Facts about the activity¹⁶⁴

Oslo University College provides a Bachelor programme for aspiring art and design teachers in primary and secondary education. Within this programme, a two-day entrepreneurial camp and a six-week module called 'Entrepreneurship' are compulsory for all students in their third year.

During the two-day entrepreneurial camp, students have to develop a project idea about how to promote an organisation or a product. It is expected that this exercise helps them to gain understanding of the creative processes related to the start-up process of a small business. Usually, a well-known firm is invited to advise the student. Well-known firms include the gift shop at the Munch Museum, the Norwegian Trekking Association and the Norwegian Cyclists' Federation.

During the six-week module, students are required to develop business or social

Focus

- Compulsory module included in education of teachers in art and design
- Students start up companies and take part in business plan competitions
- Students as well as university teachers warm up to the subject through learning by doing

entrepreneurship ideas. In the first week they learn about marketing, business planning and the economy. Subsequently, the students form groups, register themselves as student businesses and create their own business plan. The students are guided by a mentor from outside the college. The whole process of the project work has to be documented in order to have an understanding of the work that has been undertaken and to learn how to motivate pupils. Ultimately, the students have to present their project.

Students can continue their work in the student firms for a whole year, as some students will choose entrepreneurship as a specialization.

The aim of providing the two-day entrepreneurial camp and the module 'Entrepreneurship within art and design teacher education' is twofold. Firstly, the idea is to provide student teachers with a thorough understanding of entrepreneurship education in order to prepare them for their teaching practice. Secondly, student teachers can use the knowledge for their own benefit in creating business opportunities for themselves.

In total, there are around 55 students per year participating in the programme.

Outcome / impact of the activity

In general, the students' involvement in entrepreneurship education and in self-established creative projects leads to increased self-confidence, a more positive attitude to risk-taking, and increases their business management skills. Furthermore, the activities helped to improve the relations between Oslo University College and creative firms, local politicians and city run businesses.

During the whole study period, students have to be supported by a mentor in the industry. It became evident that many local business representatives are willing to support the student teachers. One of these businesses is Funkle, an award winning small design bureau in southern Norway.¹⁶⁵ Funkle representatives accompany the students and share their experiences in starting a business and solving the problems arising in this process.

¹⁶⁴ The information is based on an interview with Odd Maure, Lecturer in Art and Design at Oslo University College, conducted by GHK in May 2010.

¹⁶⁵ <http://www.funkle.no/en>

Context and history of the activity

Entrepreneurship as a subject was introduced to a group of students within the Department for Art and Design five years ago. Entrepreneurship was included as a subject in two different programmes: 'the 'Arts and design teacher programme' and the 'Study programme in the field of fashion, fine arts and design'. The latter is not teacher education, instead it concerns gallery and exhibition work. Entrepreneurship is provided as a separate course in both of these study programmes.

The university administration has welcomed the government initiative and supported the implementation of entrepreneurship in teacher education at Oslo University College, since the university representatives supported the idea that an entrepreneurial way of thinking and solving problems will be a significant asset in students' professional life.

Every year, regional competitions are organised to identify the student project with the most promising business idea. Universities, colleges, business colleges, and other schools can participate in the competition. It is compulsory for all student firms developed at Oslo University College teacher education programme to participate in the local competition. Usually, one or two of them are selected to proceed to the next level, the nation-wide competition.

Lessons learnt

Entrepreneurship as a subject and as a new way of thinking is highly integrated and accepted at Oslo University College in all departments.

Initially, a number of teachers did not feel comfortable with teaching the subject. However, training helped to boost their confidence concerning the subject and those teachers who have been involved in entrepreneurship for a longer period of time see the value of teaching the subject. Currently, four out of thirty-five teachers at the Department for Art and Design are involved in entrepreneurship.

Since art and design students have creative abilities, they are usually perfectly up to the task of developing ideas and entrepreneurial concepts. Even though some students do not fully understand the point of studying entrepreneurship from the outset, they later come to understand the importance of the subject. Learning by doing, participating in local and national competitions and close relationships to the business sector helped to establish the core ideas of entrepreneurship education among students.

Success factors

- Demand by national initiative;
- Support by university administration.

Lessons learnt

- Training helped to overcome initial scepticism and boosted the confidence of university teachers concerning the subject ;
- Art and design students with their creative abilities are perfectly up to the task of developing ideas and entrepreneurial concepts.

Further information

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Hedmark University College

Facts about the activity

Hedmark University College is one of the biggest educational institutions in Norway. At Hedmark, several initiatives have been undertaken to root entrepreneurship education in its programmes for teachers:

- Taking part in the development of the 'Teach & Esprit Handbook' 2004-2007¹⁶⁶ (together with European partners from Cyprus, the Czech Republic and Germany);
- Development of an approach to pedagogical entrepreneurship and modules for continuing training of in-service teachers heads of faculty¹⁶⁷;
- Development of modules for the training of teacher trainers¹⁶⁸.

Hedmark sees teachers as important role models. If it is intended to achieve a positive attitude among young people in schools towards entrepreneurship, innovation and reorientation, teachers should know how to convey this and to adapt to a new role. They should no longer regard themselves as lecturers, but as facilitators.¹⁶⁹ Therefore, students are invited to reflect on their role, build self-confidence and to find out by themselves what kind of teacher they would like to be.

A broad approach is pursued that aims at knowledge, skills and in particular, attitudes and at several target groups.

Outcome / impact of the activity

Though it is mentioned as a key competence in the national curriculum, entrepreneurship is not a compulsory subject in teacher education (yet), even though practitioners would very much like it to be.¹⁷⁰ Most student teachers, in-service-teachers and teacher trainers neither have an entrepreneurial attitude 'by nature' nor are they very keen on acquiring one. Much effort has to be put into the process of changing attitudes and 'professional cultures' and short-term results cannot be expected.

The methods described in the Teach & Esprit Handbook are still up-to date and would be suitable for teachers in general education too – Hedmark does not differentiate between teachers in general education and teachers in VET regarding this subject. The modules developed for in-service teachers and heads of faculties are taught on a broad basis and are further developed. It has shown that the first outcomes that teachers realise in schools are projects like student companies.¹⁷¹ The realisation of horizontal pedagogical and didactical approaches is a long-term goal.

It has been identified as a problem to the integration of entrepreneurship education in initial teacher education, that teacher trainers themselves do not have an entrepreneurial attitude. Therefore, they do not serve as role models of the professional

Focus

Hedmark University belongs to the institutions that were involved in the development of the national strategy and therefore looks at its own achievements as well as at the general process:

- Short term goals like projects and modules were implemented;
- Achieving change in professional attitudes of teachers (from lecturer to facilitator) is a long-term goal.

¹⁶⁶ http://www.teach-esprit.net/files/handbook_common_version_EN.pdf

¹⁶⁷ Information based on an interview with Elisabeth Ronnevig, Hedmark University, Faculty of Economics and Leadership, conducted by GHK, 26 April 2011

¹⁶⁸ Ibid.

¹⁶⁹ Entrepreneurship education for teachers and school-leaders. Elisabeth Ronnevig, Hedmark University. Presentation in Brussels, 19 October 2010

¹⁷⁰ Information based on an interview with Inger Karin Roe Odegaard, formerly Hedmark University, conducted by GHK, 8 April 2011

¹⁷¹ <http://www.ewb.ja-ye.org/index.php?sivu=about>

entrepreneurial attitude intended.¹⁷² To support this process, Hedmark is currently in the process of developing modules for the training of teacher trainers (32 hours, 4 days). These modules will enter a pilot phase of practical testing in May 2011. It will be discussed with a group of teacher trainers and enter the next phase of dissemination in autumn 2011.¹⁷³

Context and history of the activity

The framework for all teacher education programmes provided by the national action plan describes the necessity for developing learning strategies that encourage the pedagogical use of entrepreneurship in training. Colleges are obliged to ensure that entrepreneurship becomes an interdisciplinary subject in teacher education by preparing a special curriculum. The approaches developed must not necessarily be compulsory for student teachers, though.

However, this policy pressure helps initiators of measures to forward this pressure to institutions that have been reluctant until now.¹⁷⁴

It is also important to note that the action plan has been developed in cooperation with universities, several teacher education institutions among them and the Ministries. Several members of the education and training staff of Norwegian universities were/are members of the expert team that developed the Action Plan for Entrepreneurship Education. An extensive pilot phase has been scheduled and evaluated.

This approach ensures the biggest possible support for the policy within the institutions.

Lessons learnt

Nevertheless, even this thorough approach takes its time until it has been disseminated and is accepted in the field. After all, the result intended is nothing less than the development of a new teacher's role and a paradigm shift; teachers should see themselves not as lecturers, but as leaders of the learners' learning processes, as facilitators, organizers, motivators who foster the development of creativity, new ideas and innovation and enable personal growth and entrepreneurial attitudes.¹⁷⁵

Therefore, student teachers are an important target group. To reach them, teacher trainers have to be convinced. This is the next aim of the initiatives taken at Hedmark University.

Further information

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Lessons learnt

- Policy pressure is welcomed by people in the field to convince decision makers
- Dissemination of approach and acceptance in the field takes time

¹⁷² Interview with Inger Karin Roe Odgaard, formerly Hedmark University, conducted by GHK, 8 April 2011

¹⁷³ Interview with Elisabeth Ronnevig, Hedmark University, Faculty of Economics and Leadership, conducted by GHK, 26 April 2011

¹⁷⁴ Ibid.

¹⁷⁵ Entrepreneurship education for teachers and school-leaders. Elisabeth Ronnevig, Hedmark University. Presentation in Brussels, 19 October 2010

Sogn og Fjordane University College

Facts about the activity

The south-west Norwegian county Sogn og Fjordane is a rural area with small towns, characterized by its fjords - many of the them listed as UNESCO World Heritage Sites, attractive for tourist and travellers. In Sogn og Fjordane County, a broad focus has been placed on entrepreneurship in schools since 2003. This work is coordinated by the County Governor in collaboration with municipal regions, the county municipality, Innovation Norway (a public actor), Junior Achievement-Young Enterprise (JA-YE) Norway and Sogn og Fjordane University College. All upper secondary schools and most primary and lower secondary schools have received funds to encourage the initiation of entrepreneurship schemes.¹⁷⁶

The approach pursued aims at the economic development of the whole region.

Focus

The REAL project aims at

- Cooperation between the university and several regional actors
- Regional development and job opportunities in the area

Entrepreneurship in education and training aims at:

- The development of personal qualities and attitudes (ability and willingness to take initiative, innovation and creativity, willingness to take risks, self-confidence, ability to collaborate and social skills);
- The acquisition of knowledge and skills through the use of entrepreneurial working methods; and
- The acquisition of knowledge and skills concerning business development and innovative processes.¹⁷⁷

Sogn og Fjordane University College and the county authorities collaborated on the implementation of the project 'Rural Entrepreneurship Through Action Learning' (REAL) in teacher education. The project is based on an approach for entrepreneurship education that is already well-established in the USA, where it was developed in the 1970s.¹⁷⁸ Sher and DeLargy, created the approach as a reaction to the problems of rural youth, who - due to declining job opportunities - moved to more urban areas in large numbers, hoping to find better jobs. During their job search, many of these young people discovered that they are ill-prepared for competition with school leavers educated in urban areas. So Sher and DeLargy concluded that, in order to overcome both problems - rural exodus and the inequality of chances between cities and rural areas – rural youth should rather be supported by educational institutions to become job creators, not just job seekers. They developed the idea of school-based community development corporations. The idea was to help school students to identify opportunities and needs in their communities and create businesses and develop ideas to serve these markets.¹⁷⁹

Sogn og Fjordane University College has translated and adapted the REAL tools to Norwegian conditions. Entrepreneurship has been included in teacher education as a cross-disciplinary subject. This applies to general teacher education, pre-school teacher

¹⁷⁶

[http://planipolis.iiep.unesco.org/upload/Norway/Norway%20See the opportunities and make them work 2004-2008.pdf](http://planipolis.iiep.unesco.org/upload/Norway/Norway%20See%20the%20opportunities%20and%20make%20them%20work%202004-2008.pdf), p. 13

¹⁷⁷ Ibid, p. 8.

¹⁷⁸ Sher and DeLargy,

http://www.oecd.org/secure/pdfDocument/0,2834,en_21571361_38013663_39137886_1_1_1_1,00.pdf

¹⁷⁹ Ibid.

education and a one-year programme in educational theory and practice (PPU).¹⁸⁰ REAL also cooperates with primary schools and kindergartens (Mini-REAL).

REAL is an integral part of the teacher education programme. It consists of different components - training on the REAL method as well as working on own ideas and projects, peer learning, working in groups etc. Several amounts of ECTS credit points are allocated to the different components, which take place throughout the whole cycle of the respective teacher education programme. Projects and group learning activities take place in cooperation with the local (business) community.¹⁸¹

Outcome / impact of the activity

The REAL project aims at contributing to the development of the area and the local community. The programme was implemented in 2007/2008. In terms of impact assessment, the university ensures that the project activities are closely monitored. A 'triple helix' of actors are included in the decision-making process of all questions concerning the concept and impact of the activities:

- Representatives of the practical area (e.g. school teachers and heads of schools);
- Representatives of the local business community;
- Representatives of the university.

The preliminary results show that that business start-up activity in the area has effectively increased.¹⁸²

Key impact

Monitoring indicates that business start-up activity in the area has effectively increased.

Context and history of the activity

The development of REAL at Sogn og Fjordane was influenced by the 2004-2008 national strategy. The initiative has been funded by the Norwegian Government in connection with the comprehensive strategy and it is supported by the county authorities in Sogn og Fjordane who have put entrepreneurship and innovation as one of the main areas of priority.

In addition to the REAL programme in initial teacher education, the University College has implemented more projects on the subject. They aim at:

- the establishment of student enterprises in all the faculties;
- the establishment of a new three-year programme of study in 'Crafts and design with emphasis on entrepreneurship';
- entrepreneurship in kindergartens; and
- the development of several other continuing education courses.

All of the initiatives use the REAL tools and they are based on methods of experience-based learning. The university college has adapted the material so that it is suitable for kindergartens, primary and lower secondary education, higher education and local communities.¹⁸³

Lessons learnt

The approach is part of an overarching local strategy and based on a well-evaluated and well-documented method practiced in several areas in the USA. During preparation, college representatives took part in study visits and peer learning activities themselves. This preparation phase has been of enormous importance for the initiators.

¹⁸⁰ http://planipolis.iiep.unesco.org/upload/Norway/Norway_Action_Plan_Entrepreneurship_2009_2014.pdf, Box 7

¹⁸¹ Information based on an interview with Inger Karin Røe Ødegård, April 8, Budapest

¹⁸² *ibid*

¹⁸³ Action plan, p. 21

The implementation is seen as the ongoing work of several partners. The method needs to be constantly refined and adapted to be able to respond to the actual local needs and changing economic conditions. In line with entrepreneurial qualities, learning by trial and error is encouraged and support for teacher trainers using the method and the tools is organised. Evidence-based methods are used to monitor the success of the approach.¹⁸⁴

It was also necessary to secure external funding for the development and adaptation of the method to local needs. Regarding the implementation in the institution, it has been important to ensure that the head of the university supported the implementation of the project(s) and the comprehensive educational approach.¹⁸⁵

Further information

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Success factors

- Based on a well established, well researched method;
- Extensive preparation phase with study visits and peer learning activities;
- Support by the head of the university and regional stakeholders;
- Government funding.

Lessons learnt

- The method needs to be adapted to local conditions;
- Constant refinement of the method;
- The interdisciplinary and inter-institutional monitoring group monitors the process.

¹⁸⁴ Ibid.

¹⁸⁵ Interview with Inger Karin Røe Ødegård, April 8, Budapest

Portugal

Summary

In Portugal, as a follow up to the Lisbon Strategy, entrepreneurship education has been promoted as a key competence. This is represented by the introduction of the National Programme for Entrepreneurship Education (PNEE – 'Programa Nacional para a Educação para o Empreendedorismo') of 2001. A sound methodology together with guidelines for entrepreneurship education for primary and secondary teachers, has been developed. In addition, a new national strategy is being jointly developed by four ministries in order to implement various projects related to entrepreneurship.

However, due to the political and economic crisis in Portugal, the implementation of the strategy had to be postponed.

When mapping institutions offering teacher education, no institution could be identified that has clearly integrated entrepreneurship education into initial teacher education. Two interesting projects in the broader context of teacher education and social inclusion, have however been identified: The *Pinokio* project at the University of Madeira) and the master's degree in 'Social Intervention, Innovation and Entrepreneurship (ISIE)' at the Faculty of Education and Psychology at the University of Coimbra. These will be summarised below.

Portugal

- National Programme for Entrepreneurship Education of 2001 – was put on hold due to economic crisis
- Low level of activity, no special initiatives in initial teacher education identified

Case Studies:

University of Madeira

University of Coimbra

(Examples not related to initial teacher education)

Background information about teacher education in Portugal

In Portugal, the educational system is regulated by the Ministry of Education jointly with the Ministry of Sciences, Technology and Higher Education. Teacher education for pre-school, primary and secondary education levels is divided in different categories - initial training, specialized training and continuing training¹⁸⁶. The initial training is undertaken at higher education institutions.

Students aiming to become teachers in basic education are trained in *Escolas Superiores de Educação*, which are either a part of universities or of polytechnics. Students aiming to become teachers for the third cycle of basic education or secondary education, obtain their training at the university. A student can select a teaching subject (teaching of a foreign language, of mathematics, etc.) in the first year of their bachelor degree.

In order to become a teacher, a master's degree must be obtained which corresponds to three years of study for a bachelor degree, followed by one or two years of master's degree study. The master's degree is therefore a precondition to become a teacher at any level of education (even for pre-school education teachers). In addition, a grade of 'good' must be obtained at the internship phase (a major part of all teacher education programmes, internships and phases of professional practice). Finally, access to teaching in the public sector is regulated by a national application based on academic qualifications and professional experience.

¹⁸⁶ EURYDICE. National reports on educational systems in Europe and ongoing reforms, Portugal June 2009.

Entrepreneurship education within the national education strategy

Portugal has introduced the National Programme for Entrepreneurship Education (PNEE - Programa Nacional para a Educação para o Empreendedorismo).¹⁸⁷ Under the PNEE, a sound methodology is being developed and various conferences organized. The General Directorate for Innovation and Curriculum Development has produced a set of guidelines and educational materials to support teachers in teaching and development activities and projects. The guidelines promote entrepreneurship education, introducing a national project (*Educação para o Empreendedorismo*) in schools. Guideline books have been also edited under the project 'Education for Citizenship'. The 'Guide Book for Entrepreneurship Education' is part of this collection and was jointly created with the Centre for Entrepreneurship Education to develop a school intervention methodology for entrepreneurship education.¹⁸⁸ Various approaches have been introduced, such as the implementation of teamwork projects, debates of ideas in class, participation in international competitions (e.g. building of a virtual enterprise, for instance), etc.

A survey carried out in 2006 showed that a total of 27 entrepreneurship courses were being taught in Portugal during the academic year of 2004/2005. Entrepreneurship education was embedded in a variety of faculties and subjects, but mostly in faculties relating to economics and management. None of these programmes addressed student teachers.¹⁸⁹ An independent evaluation of the PNEE will soon be published.

A new national strategy has recently been developed together with four ministries in order to implement various projects related to entrepreneurship, among which one is a lifelong learning programme for primary and secondary teachers. This programme aims to provide in-service teachers with entrepreneurship education training.¹⁹⁰

However, due to the political and economic crisis in Portugal, the implementation of the strategy had to be postponed. Continued work on the strategy remains dependent on funding from the future government and the private sector.

Regarding teacher education, a range of adjustments have been made to develop new methodologies of teaching. The emphasis has been made particularly in the teaching of citizenship skills and the use of ICT. Many continuing training courses are offered to current teachers in order to update their skills and methodology.

Website screening results:

No institutions have been identified as providing compulsory or elective courses in entrepreneurship.

Nine institutions take the principles of entrepreneurship education into account by referring to the core values in their mission statement, or referring to methods and pedagogical approaches which draw on entrepreneurship education.

Eight institutions are engaged in research programmes related to entrepreneurship education, namely on pedagogical methods, curricula development, innovation and globalization.

¹⁸⁷ In Portuguese: DOSSIER PNEE, Projecto Nacional 'Educação para o Empreendedorismo

www.dgicd.min-edu.pt/educacaocidadania/.../educacaocidadania/educacao_para_o_empreendedorismo/dossier_pnee_piloto.pdf

¹⁸⁸ Ministry of Education, DGICD, Guião de *Educação para o Empreendedorismo* (Guide Book for Entrepreneurship Education), 2006. And http://area.dgicd.min-edu.pt/ebook/v_3_cultura_empreendedora.asp?Path=3&ID=%7B46997626-84BD-49CA-8552-EF09866FD169%7D

¹⁸⁹ Entrepreneurship education in Portugal: 2004/2005 national survey. Dana T. Redford, Instituto Superior de Ciências do Trabalho e da Empresa, Escola de Gestão, 2006.

¹⁹⁰ Information based on Interview with Prof. Dr. Dana T. Redford, Executive Director Centre for Entrepreneurship Education in Portugal (CEEP), conducted by GHK on 15 April 2011.

University of Coimbra, Faculty of Psychology and Educational Sciences and Faculty of Economics

Facts about the activity

The University of Coimbra provides a Master's Degree in Social Intervention, Innovation and Entrepreneurship (ISIE) at the Faculty of Psychology and Educational Sciences (in partnership with the Faculty of Economics), created in 2009. The aim of the programme is to transform practices in the area of social intervention. The programme introduces innovative methods by using creative, reflexive and socially sustainable initiatives to address issues such as social vulnerability and social exclusion. It is based on an interdisciplinary philosophy, emphasizing innovation and social impact through social entrepreneurship.¹⁹¹

Target groups are:

- Students of social work, sociology, social psychology, social policy, local and community development;
- Practitioners working in social intervention projects and/or organisations;
- Current and prospective social entrepreneurs (individuals developing projects for social innovation);
- Practitioners from the field of social intervention.

Focus

- Interdisciplinary study programme
- Activity from the area of social entrepreneurship
- Fosters academic social incubators, providing technical services via the research and development of innovative strategies to the third sector

Link to teacher education:

Ideas developed in the academic social incubator might be of relevance for initial teacher education.

Outcome / impact of the activity

One side effect of the programme is that it has successfully attracted people from different backgrounds and professional experience in order to develop new strategies and methods for social inclusion based on entrepreneurship education. Learners work together in a so-called 'Academic Social Incubator'. The name has been chosen to reflect 'Business Incubators'. These are organizations that have been established to promote business entrepreneurship providing know-how, management skills and specific services to newly created and developing companies. The aim of the Academic Social Incubator is to provide technical services through the research and development of innovative strategies to the third sector. The Academic Social Incubator defines itself as an active mediator between the knowledge produced at the academic level and the practice of social institutions in the field, offering new strategies to develop sustainable social interventional practices and developing ideas of social entrepreneurship.

The Academic Social Incubator from the University of Coimbra has recently won a prize from the private sector for their successful participation in the Reinvent Coimbra Contest (Concurso Reinventa Coimbra), in the area of innovation and entrepreneurship.

Further information

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¹⁹¹ Information based on an interview with Professor Dr. Albuquerque, co-coordinator of the ISIE, conducted by GHK in April 2011.

University of Madeira

Facts about the activity

P.IN.O.K.I.O.¹⁹² (Pupils for INnOvation as a Key to Intercultural and Social Inclusion) is a European project promoted by the Italian based Fondazione Nazionale Carlo Collodi in collaboration with five other European partners: the University of Madeira (Portugal); the Aristotle University of Thessaloniki (Greece); the Cà Foscari University - Interuniversity Centre of Excellence (Italy); the Mosaic Art and Sound Ltd (United Kingdom); and the International Yehudi Menuhin Foundation (Belgium). *Pinokio* is co-funded by the Lifelong Learning Programme – Comenius Multilateral Project.

Pinokio has been implemented and tested in six schools in Madeira. The project provides teachers in primary and secondary education with new tools and innovative pedagogic methodologies for teaching key competences and entrepreneurial attitudes to pupils.

In addition, *Pinokio* also publishes books and guidelines in order to promote the innovative methodologies developed.

Outcome / impact of the activity

In creative laboratories, pupils have developed their creative entrepreneurial skills through designing and creating products such as internet blogs, choreographies, videos, books or post cards. These products were shared between the various schools taking part in the project. Teachers reported that new tools and methods were useful to developing an approach to teaching competences like 'sense of initiative and entrepreneurship' to pupils in the classroom.

The project has shown that teachers in pre-school and primary education often are unsure of how to develop appropriate methodologies to teach key competences such as entrepreneurial mindset, to pupils on their own. The project has proved that there is a demand among pre-school and primary teachers to learn new methods and tools.

Pinokio has also established a broad network of European schools that enables teachers and pupils to exchange practices and interact across Europe.¹⁹³

Further information

University of Madeira

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Focus

Pinokio aims at developing and testing new tools suitable for entrepreneurship education in pre- and primary school.

Link to teacher education:

Pinokio shows that methods to teach key competences like 'sense of entrepreneurship' in pre- and primary school are scarce and not very well known. When teachers have a chance to test them, they confirm the practicability and usefulness of these methods and tools.

¹⁹² Information on the programme: <http://www.pinokioproject.eu/node/21>

¹⁹³ Information based on an interview with Luísa Marinho Antunes Paolinelli, conducted by GHK, 18th April 2011.

Sweden

Summary

Sweden has a national strategy for entrepreneurship in the education sector in place, with a view to integrating entrepreneurship throughout the entire education system. The strategy was developed by the Ministry of Education and Research and the Ministry of Enterprise, Energy and Communications and describes eleven measures aimed at encouraging the integration of entrepreneurship into all levels of education.

The core structure of teacher education in Sweden is currently undergoing an extensive change. The former single teacher diploma is now replaced by four new qualifications for kindergarten teachers, primary teachers, subject teachers and vocational teachers. In the general objectives of the new curriculum, entrepreneurship as an independent subject integrated into teacher education, cannot be found. The features of entrepreneurship and entrepreneurial behaviour are however strongly promoted.

The activities of three teacher education courses are presented in more detail below: at **Kristianstad University**, two courses are implemented directly involving entrepreneurship and **Umeå University** aims at combining research and practice in entrepreneurship education. At **Gävle University College**, several modules focusing on entrepreneurship education have been taught until recently, but are now under construction due to the new qualification structure for teachers.

Background information about teacher education in Sweden

Tertiary education in Sweden is provided in higher education institutions: universities (universitet) and university colleges (högskola). The curriculum for all levels of education is determined at the national level and is the basis for the municipalities' school plan setting out the general objectives. In addition, each school has a work plan based on both the curriculum and local priorities, and within this framework teachers and institutions are free to select teaching methods and teaching material.

In 'Top of the class – new teacher education programmes' (Govt. Bill 2009/10:89), presented by the government to the Riksdag (Swedish Parliament) on 11 February 2010, the government proposed that current degrees in education be replaced by four new professional degrees: a degree in pre-school education, a degree in primary school education, a degree in subject education and a degree in vocational education.

The idea behind dividing teacher education into four different types of degrees is to

Teacher education and training in Sweden

- Ongoing reform of teacher education – four new professional degrees will be introduced;
- Teacher education opened up to professionals with preceding work experience.

allow student teachers to focus more on their subject fields at the level that they are studying it. It is, according to the Swedish Government, important that there are a variety of paths leading to the teaching profession – for instance to enable people with preceding professional experience and sufficient knowledge of at least one subject to follow a supplementary teacher education programme leading to a degree in subject education.

As part of the process of introducing the new qualification structure for teachers, the teacher

Sweden

- National 'Strategy for Entrepreneurship in the Education System' since 2009 – eleven measures taken.
- Entrepreneurship education not literally mentioned in renewed concept for teacher education.

Case Studies:

Kristianstad University
Umeå University
Gävle University College

education departments of Swedish higher education institutes were required to submit an application to the government outlining which of the teacher degrees they wanted to provide. As the screening and approval of these applications is still ongoing, there is a limited amount of information about study programmes and their content available on many of the screened institutions' websites.

Entrepreneurship education within the national education strategy

In 2009, Sweden introduced a national action plan on entrepreneurship in education: 'Strategy for Entrepreneurship in the Education System'. The strategy was developed in collaboration with the Ministry of Education and Research, and the Ministry of Enterprise, Energy and Communications. It outlines the importance of stimulating the creativity of young people, as well as providing the necessary skills and knowledge for those who want to start and run businesses. The main aim of the action plan is to integrate entrepreneurship and the entrepreneurial mindset throughout the whole Swedish education system.

The national strategy for incorporating entrepreneurship in the education system suggests that being self-employed should be as natural a choice as being an employee. It further suggests that the education system can play an important role in achieving this by helping pupils and students develop and make the most of the knowledge, skills and approaches that are required. The Swedish Government has identified eleven measures aimed at encouraging the integration of entrepreneurship into all levels of education.¹⁹⁴

Strategy for entrepreneurship in the education system (Sweden, 2009)

- Entrepreneurship and an entrepreneurial mindset should be integrated throughout the whole Swedish education system.
- Higher education institutions are mentioned as important actors when it comes to developing an entrepreneurial approach.
- Funding opportunities to develop entrepreneurship education approaches in higher education institutions are offered.

- 1 The importance of encouraging the skills and abilities that outline the basis of entrepreneurship will be emphasized in policy documents for compulsory school.
- 2 Entrepreneurship will be emphasized in upper secondary school policy documents.
- 3 Greater opportunities for more in-depth studies of entrepreneurship and enterprise in upper secondary school will be created.
- 4 Upper secondary vocational education will be more closely linked to working life and companies. Apprenticeship training will be introduced and pupils taking part in vocational training will be given better insight into the conditions for enterprise.
- 5 A new concept for vocational competitions at school level should be developed.
- 6 Support will be given to schools to encourage work on entrepreneurship.
- 7 Mapping the work on entrepreneurship in compulsory and upper secondary schools is under way.
- 8 Mapping and analysing work on entrepreneurship at post-upper secondary vocational schools outside the higher education institutions.
- 9 Mapping and analysing education in entrepreneurship and innovation at higher education level.
- 10 Support universities and other higher education institutions to stimulate entrepreneurship.
- 11 Development of cutting-edge programmes in entrepreneurship and innovation.

These measures cover general ideas about how to raise awareness and activity in the field of entrepreneurship and innovation in the education system. However, although there is no specific description of entrepreneurship education in teacher education, higher education institutions are mentioned in point 9 and 10 as being important actors

¹⁹⁴ Strategy of entrepreneurship in the field of education <http://www.sweden.gov.se/content/1/c6/12/99/99/e6e61481.pdf>

when it comes to developing an entrepreneurial approach, and in need of support to achieve this. The National Agency for Higher Education has been given the task of examining the applications from universities/university colleges to receive funding to develop educational programmes in entrepreneurship and innovation.

Implementation of entrepreneurship education in teacher education

Since the new teacher education programmes introduced by the governmental 'Top of the class' bill are not yet fully formed and outlined by individual institutions, very little concrete information on teacher education can be found on the respective websites (please consult annex 4 for more details).

Nevertheless, the new national curriculum, on which all higher education institutions will base their individual study plans, is already available. The new curriculum puts extensive effort into accentuating the importance of higher education being a promoter of skills and attitudes related to an entrepreneurial approach. Responsibility for learning, self-awareness, creativity, capacity to discover opportunities, cooperation, motivation, self-confidence, sense of initiative and risk-taking are qualities that can be found in the curriculum, when referring to the needs of an innovative and entrepreneurial mindset among primary school pupils, university students and teachers.

The curriculum does not mention teacher education literally or as a separate subject, but its vocabulary and content makes it clear that the entrepreneurial approach described in the document undoubtedly includes the training of future teachers as well as those teachers who have worked in the profession already for a while.

Website screening results

Websites of Swedish teacher education institutions were **under construction** during the website screening period due to ongoing educational reform.

Therefore under these restricted conditions, only **Kristianstad University College – School of Teacher Education** was identified as providing entrepreneurship education for student teachers.

The other examples provided here were found by additional research.

Kristianstad University

Facts about the activity

At Kristianstad University, two courses involving aims and methods of entrepreneurship education are offered in teacher education:

The course **'Learning entrepreneurship for sustainable development in the Öresund Region'** (15 ECTS credit points) was developed in 2009. The course is given in the context of the subject 'science education'; it is optional and aims at providing tools for an entrepreneurial way of analysing sustainable urban development, climate change, public transport, environment, and other related matters. This is done both by theoretical analysis, as well as practical exercises allowing students to create their own projects based on real life situations and locations. Students get to plan an urban environment in the Öresund Region with regards to traffic, health, environment and security issues. At the end of their project their task is to market and communicate the message of a fully developed product, in this case a real and new traffic situation and solution.¹⁹⁵

The course **'Learning through thematic work – language and creativity III'** aims at further developing the subject knowledge of the students and their didactic abilities and skills by integrative teaching. The subject content is inserted into the relevant didactic context and in practical learning processes through studying expanded text and language concepts. The aim is to increase the students' knowledge and understanding of inter-disciplinary teaching methods as well as deepen their training in the use of arts and bodily expression. During the course the students work on their leadership skills to increase their ability in the role of being teachers. This is important in order to apply personalized teaching with the aim of developing the pupils' learning through creative expression.

Several pedagogical working methods based on the key competences of entrepreneurship education are found in the curriculum of both courses and used in the course 'Learning through thematic work – language and creativity III'. Among these are pedagogical drama and learning diaries, field visits, learning by doing, workshops, mini-companies, study tours, project work, and group and peer work. Tools such as ICT tools and music instruments are regularly used in the teaching. Teaching takes place both indoors and outdoors and sometimes also during evenings.

This course is compulsory for student teachers who have specialized within the field of language and creativity, and who are aiming at becoming pre-school or primary school teachers. It gives 30 ECTS credit points and every year around 60 students take the course.¹⁹⁶

Focus

- Broad understanding of the subject, aiming at a mindset that allows for the development of entrepreneurial skills and attitudes that favour newer and more open and creative ways of teaching and learning;
- Two comprehensive courses on offer including a wide range of innovative and creative methodology (15 and 30 ECTS points).

¹⁹⁵ Information based on an interview with Christel Persson, University Lecturer at Kristianstad University, conducted by GHK in May 2011.

¹⁹⁶ Information based on an interview with Mariann Persson, University Lecturer at Kristianstad University, conducted by GHK in May 2011.

Outcome / impact of the activity

At Kristianstad University, entrepreneurship education is understood as a broad approach which is much more than learning how to start up a new business. It should be considered also as a mindset; a concept for developing entrepreneurial skills and attitudes that favour newer and more open and creative ways of teaching and learning.

The overall purpose of both courses is for students to develop an understanding, skills and a scientific approach to entrepreneurial learning. After having completed the courses, students should be able to contribute to the development of interdisciplinary and thematic working processes in pre-schools and primary schools from an entrepreneurial perspective. Other expected outcomes are personal development and acquired leadership skills and an ability to shape the teaching of a subject innovatively and creatively.

The aim is to raise students' self-confidence, to motivate self-drive and confidence in individual capabilities, as well as fostering a capacity to discover opportunities and becoming more willing to take initiatives and risks – not only when it comes to new teaching methods, but also considering their attitude to their own learning process.

Teachers teaching the courses are highly enthusiastic and are able to motivate the students – this could be considered as the greatest outcome so far. Students' skills related to social entrepreneurship, and abilities to teach in innovative and creative ways clearly are increased by both courses.

Kristianstad University aims at integrating these two courses into the new qualification structure for teachers in Sweden, which will be launched in the autumn of 2011.

Context and history of the activity

The curriculum of the new teacher education in Sweden, starting in the autumn of 2011, focuses to a large extent on key competences like creativity and sense of initiative, that are also mentioned in the context of entrepreneurship education. A clear public interest in providing and developing entrepreneurship education in Swedish higher education institutions was signalled, and the Swedish University Board offered the chance to apply for grants supporting the development of courses within the field of entrepreneurship education. The development phase of both courses outlined above was financially supported by the Öresund Entrepreneurship Academy at the University of Lund, Sweden.

Kristianstad University also engages in two Science Centres: Kreativum and Futurum; Kreativum provides various activities and experiences aimed at stimulating the creativity and curiosity of children and adolescents and Futurum provides guidance to students who have a business idea. The teacher education at Kristianstad University has cooperated with Kreativum and Futurum on several occasions, exchanging ideas and good practice. Moreover, Kristianstad University participates in several networks related to entrepreneurship in the Skåne Region. Members of the networks are higher education institutions, including the Malmö University College, where the Centre for Public Entrepreneurship is located. The objective of these networks is to meet and discuss current developments within the field of entrepreneurship.

Furthermore, Kristianstad University cooperates with 'The Centre for Public Entrepreneurship' at Malmö University¹⁹⁷, a resource centre for people and organizations that have a community development idea. The centre supports social entrepreneurial ventures in the whole county by offering mentoring and advice on funding, organization, project management, communication and access to multi-sectoral networks.

¹⁹⁷ More information (mostly in Swedish language): <http://www.publiktentreprenorskap.se/>

Lessons learnt

Kristianstad University has committed to the integration of entrepreneurship education in its main activities, but the approach is relatively new and the process of integration has only recently begun. The fact that the approach is strongly supported by the Swedish Government is welcomed and it is expected to lead to further developments and better integration of the activities started. For example, the course 'Learning entrepreneurship for sustainable development in the Öresund Region' was first offered during the summer months as an optional course for student teachers becoming pre-school and primary school teachers. However, due to insufficient applicants the course did not start as planned; the reasons for low take up may be associated with the timing of the course (i.e. in the summer months) and because the notion of entrepreneurship education may be relatively unknown to many individuals. The initiators now plan to provide more information on the course content and promote the benefits of taking the course in order to encourage more students to apply. In the long term, it is envisaged that the course will be implemented as a compulsory integrated module in teacher education.

The initiators further suggest that labelling the approach with the use of the word 'entrepreneurship' might need to be reconsidered. When used in social and social scientific contexts, it may be easily misinterpreted as a narrow concept describing the starting-up of a new business, which may have a negative impact on people's understanding of the word in its much wider and non-economical meaning.

Further information

Kristianstad University

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Gävle University College

Facts about the activity

At Gävle University College, the previously taught module 'Entrepreneurship in school' is no longer available. Due to the government reform of the teacher education system, the course can no longer run as it does not fit within the framework of the new qualification profiles. At present, entrepreneurship is a separate subject in the form of an elective or compulsory course or module that is not included in teacher education. How the subject will be included in the future remains to be seen.

The concept of entrepreneurship and entrepreneurial thinking is fully embedded in all teaching and education at Gävle University College. Education (including teacher education) at Gävle University College is characterised by being innovative, creative, and motivating. Students learn to take responsibility for their own learning process, to see opportunities, and to become more self-confident.

This approach is characterized by frequent dialogue with students, and by involving them in practical teaching, exercises and learning by doing.

The Teacher Education Department at Gävle University College also regularly organises so-called 'business breakfasts' in which business people are invited to discuss cooperation possibilities with the Teacher Education Department. Some business representatives also participate in the teaching of student teachers. The discussions on these meetings have in recent years been geared towards how to include entrepreneurship in teacher education. Overall, Gävle University College is in frequent contact with companies in the region.

The university college would like to continue its efforts on implementing entrepreneurship education and would like to see compulsory courses or modules integrated into their teacher education programmes again. Here it is recognised that it takes time to adapt the existing approaches to the design of the new study programmes and university representatives report that there is currently a great deal of uncertainty about the extent to which every university will be able to retain its individual freedom to shape the education it would like to offer.¹⁹⁸

Focus

- Previous approach (modules in teacher education) needs to be adapted to the new qualification structure
- A horizontal approach to entrepreneurship and entrepreneurial thinking in teaching is being pursued

The previous approach to entrepreneurship education was developed approximately six years ago together with Gävle community and was based on the promotion of close cooperation between schools and companies in the business sector. Recently, the municipality of Söderhamn has applied for funding for an EU-project aimed at developing the entrepreneurial mindset in the municipality. The project is also related to the education sector, and has the long-term goal of creating new job opportunities.

¹⁹⁸ Information based on an interview with Åsa Morberg, Academy Director of the School of Education and Economy, Board Member of the Association for Teacher Education in Europe (ATEE), conducted by GHK in May 2011.

Lessons learnt

The initiators of the activities at Gävle University College emphasize that, in order to foster a change in people's attitudes and mindset, the transition has to be gradual; people need time to adapt to new approaches. Here, it is also asserted that a greater focus on entrepreneurial behaviours in teacher education should also be gradual in order to be more successful.

Further information

Gävle University College

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Umeå University - Umeå School of Education

Facts about the activity

The Umeå School of Education was inaugurated in January 2009. It offers study programmes for future teachers in primary and secondary education and for pedagogues in counselling and special education. Umeå School of Education contains a research centre for enterprise learning which aims to become a pole of excellence on entrepreneurship education nationally and internationally. The centre works on the topic of entrepreneurship education and enterprising behaviour in an educational context from the point of view of theoretical as well as applied research and develops practical approaches in the form of materials and training. Research findings from the research centre show that the target group for entrepreneurship education are children and young people from pre-school to upper secondary education.

The research centre is located within the Department of Education which embraces all teaching and research activities of the university in the area of education and training including initial teacher education. Most staff members of the centre are experienced teachers; which is considered to help foster the mainstreaming of the concepts of entrepreneurship education into other courses.

According to the website of the research centre, the entrepreneurship research area 'has its base in the common needs of the university, school, society and business. The empirical material of the research comprises of on-going entrepreneur and enterprise projects involving the whole county of Västerbotten (15 communities). This empirical base is of great value. The research is tied to experiences in schools and aims at investigating and describing areas of knowledge, important for the development of entrepreneurship and enterprise education in schools.'¹⁹⁹

The centre runs specific studies which investigate the cooperation between schools, society and business. Furthermore, the centre evaluates projects within the community and different aspects of work within school projects that cover the whole educational system from pre-school up to secondary school. The results of the evaluations feed into further research and development.

The approach pursued by the Umeå Research Centre for Enterprise Learning aims at three aspects of entrepreneurship education:

- Equip individuals with the necessary skills, knowledge and attitudes which will allow them to take responsibility for their own learning, career and life;
- Increase individuals' awareness of and alertness to the outside world, the economy, opportunities and changes in general (acquisition of knowledge and specific attitudes);
- Encourage and support entrepreneurial and enterprising behaviour and hence innovation (acquiring the necessary skills, knowledge and attitudes).

Focus

Umeå Research Centre for Enterprise Learning

- **Aim:** combine research and practice in entrepreneurship education;
- **Target group:** research community, in-service teachers, initial teacher education (undergraduate and post-graduate);
- **Format of Activity:** project evaluations, studies, articles, developing teaching material, initiating modules for in-service teachers and in initial teacher education.

¹⁹⁹ Website of Research Centre for Enterprise Learning,
http://www.svshv.umu.se/forskning/project/foretag/english_aim.html

In terms of activities aimed at future teachers, the centre offers an elective course at graduate level called 'Entrepreneurship as a mindset and activity: Teacher training' (15-30 credits).²⁰⁰

The course aims to develop the students' understanding of entrepreneurship as an approach, subject and a perspective on learning. The course also aims to provide the tools to support school cultures and school structures to use a more entrepreneurial approach and is characterized by a reflection and interaction between theoretical and practical aspects.

The course consists of four parts:

- The first is called 'Entrepreneurship in school' (7.5 ECTS) and concerns the historical and political content for the idea of entrepreneurship education. Entrepreneurial culture is discussed in relation to management culture and the related conceptual analysis of work in school, but it is also discussed from the point of view of equity and inclusion. Further attention is paid to the interaction between school and work/business environment;
- The second part is called 'Internal entrepreneurship and entrepreneurship in the school' (7.5 ECTS). Distinction is made between external and internal entrepreneurship, the focus being on the first dimension (internal entrepreneurship). Internal entrepreneurship refers to pupils' motivation and willingness to learn and develop. The motivational role of the teacher is at the core of this element;
- The third part is called 'Entrepreneurship and entrepreneurial element' (7.5 ECTS) and aims to develop teachers' skills, relevant for an enterprise. Practical skills developed concern initiating, managing and developing activities in an economically sustainable way, within the social, cultural or business-related contexts focus. The course provides an introduction to key concepts such as budgeting, costing and financing of development projects. In general, there is a discussion about how innovation can be used in different ways in teaching and integration between various school subject areas;
- The fourth part is called 'Starting from an idea to action' (7.5 ECTS). In this part, students implement a project that they have envisaged. The projects are about particular aspects of school improvement. Students present the project in the form of written analysis as well as give an oral presentation of their work. Tutoring via distance learning technologies and individually chosen literature supports progression.

The course is delivered in a combination of lectures/workshops and distance learning. Eight full days of face-to-face sessions are organised over eleven months and in between students engage in autonomous learning and project work supported by tutoring.²⁰¹

The research centre also works on modules and teaching material for in-service teachers, for instance, on an eight day training course for teachers to educate them to be local project leaders in the county of Västerbotten.²⁰² The above described course is also available for in-service teachers.²⁰³

²⁰⁰ Web-site about this course: <http://www.pedag.umu.se/utbildning/kurser/kurs/?code=6PE042> (in Swedish only)

²⁰¹ Course description (in Swedish) available at <http://www.pedag.umu.se/utbildning/kurser/kurs/?currentView=syllabus&code=6PE042>

²⁰² Website of the Research Centre for Enterprise, <http://www.svshv.umu.se/forskning/project/foretag/english.html>

²⁰³ <http://www.use.umu.se/samverkan/ruc/lararlyftet/vt11-entreprenorskap/>

Outcome / impact of the activity

The establishment and staffing of the research centre is a key achievement in itself. Already in the first two years, it resulted in completion, publication and dissemination of several research reports on entrepreneurship education and related teacher education materials.²⁰⁴

In 2009, the centre assessed the contribution of entrepreneurship education teacher education (in-service training). This assessment was based on discourse analysis of teachers' own perceptions of their practice and on students' feedback. The study concluded that teachers became receptive to the use of interdisciplinary work, that they more often used questions in their teaching which were expressed in a more open and problem based manner and that they generally became more receptive to considerations about how to make teaching more enterprising.²⁰⁵

Compared to these results, the outcomes of the activities aimed at prospective teachers, are more modest. The course described above is fairly new and participation currently remains relatively low. There are several reasons why it is not currently very popular:

- On their own initiative, students are not aware of the importance of this topic;
- There is a need for more and improved communication to encourage students to take the module;
- Teaching staff also need to be introduced to the concept to make sure they support the approach and encourage students.

Key impacts

- The research centre is settled and well connected
- After training, teachers adapt new and more open and problem based teaching styles

The possibility of making a course on entrepreneurship education a compulsory element of the teacher education pathway is currently being discussed, though it should be noted no decision on this topic has been reached so far.²⁰⁶

Context and history of the activity

In 2009 the Swedish Government adopted its strategy on entrepreneurship education. The curricula already contained a number of concepts related to entrepreneurship such as taking initiative and taking responsibility.²⁰⁷ The idea in the government's strategy is that entrepreneurship education should be a common 'thread' running through all levels and types of education.

Linking research, policy and practice is the main approach to implementing entrepreneurship education in Sweden. Consequently, part of the initiative to implement entrepreneurship education is the setting up of the research centre discussed above. Furthermore, grants for the development of materials and in-service teacher education were available. The Swedish National Agency for Education also commissioned the

²⁰⁴ In Swedish only: <http://www.pedag.umu.se/projekt/foretagsamt-larande/publikationer-foretagsamt-larande-och-entreprenoriell-pedagogik/>

²⁰⁵ Leffler, Eva: Företagsamhet i företagsamma: Halland erfarenheter och lärdomar från en grundskolas gemensamma satsning på företagsamt lärande. Umeå universitet, oktober 2009
http://www.skolverket.se/content/1/c6/01/89/71/hela_rapporten_foretagsamhet_i_foretagsamma_halland.pdf
(in Swedish only)

²⁰⁶ Interview with Ron Mahieu, Senior Lecturer at Umeå University and Research Coordinator and Lecturer at the Research Centre for Enterprise Learning, Umeå University; 8 April 2011, Budapest.

²⁰⁷ European Commission, Lifelong Learning Policy, Reports and Studies: Inclusion and Education in European Countries : Sweden, page 17. Available at : http://ec.europa.eu/education/lifelong-learning-policy/doc/natreport09/sweden_en.pdf

centre to monitor national and international research on entrepreneurship education and provide a synopsis.²⁰⁸

It is of relevance for this study to note that in one of its research reviews, the centre identified a certain contradiction in the government strategy to support entrepreneurship education and the lack of any explicit reference to this topic in the reviewed concept for teacher education. While the teacher education reform identifies the following topics as important elements of teachers' competences, next to subject specific knowledge: equality, fundamental rights, education for sustainable development, conflict management, sex education; entrepreneurship education is not mentioned.²⁰⁹

Lessons learnt

The Umeå Research Centre regards the combination of different types of activities (research, teacher education, teaching material development) as a success factor for its activities in entrepreneurship education. Entrepreneurship education requires (in many cases) a new way of considering teaching and learning. Acting upon multiple issues can create positive spin-offs and increase the pace of change.

In addition to researching entrepreneurship education, the centre was also a part of the expert network and policy debates and participated in developing teaching material and modules for teacher education (initial and in-service). Due to their experience and expertise, representatives of the centre are frequently invited to conferences, expert groups and policy meetings.

To foster the institutional learning process within the teacher education institution it is important to have strong institutional leadership. At Umeå, the fact that the dean supported the initiative of engaging in activities on entrepreneurship education from the beginning was of major importance. This support was necessary, since not everybody at the faculty was equally supportive of the theme of entrepreneurship education. In order to convince students of the importance and innovative potential of entrepreneurship education, it was important to convince colleagues.

In this example, the bottom-up initiative and the activities initiated by the research centre experienced an important boost when the action plan on entrepreneurship education was issued by the Swedish Ministry of Education.

When the 'Umeå Research Centre for Enterprise Learning' proposed entrepreneurship education as a subject for teacher education, it was very important to find (one or several) individuals who could successfully teach the module. Traditionally, most teachers in teacher education institutions rely on traditional approaches and rather passive learning. Teacher educators need to incorporate the spirit of entrepreneurship education in order to effectively support the development of competences associated with entrepreneurship education. It is therefore important to find the right staff for developing this theme within the teacher education institution. Developing a team that promotes innovative methods can be seen as the beginning of the process of change.

Success factors

The Research Centre sees as its success formula that it was able to combine different types of activity: Research, innovation and (political) action.

Lessons learnt

- Areas of intervention should be multiplied: Acting upon multiple issues can create positive spin offs and increase the pace of change while acting upon only one element is likely to take a long time to achieve sustainable change;
- Support of institutions leadership is crucial;
- It is important to find teachers – and teacher educators - who are able to embody the subject and promote the approach.

²⁰⁸ In Swedish only: <http://www.skolverket.se/sb/d/3477>

²⁰⁹ In Swedish only: <http://www.skolverket.se/sb/d/4419/a/19558>

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UK - Scotland

Summary

Scotland, whilst part of the United Kingdom, takes responsibility for its own educational governance. Whilst UK wide strategies exist related to enterprise and skills, the Scottish strategy for Enterprise Education, 'Determined to Succeed', bears most weight in ensuring that activity is undertaken on the ground to develop entrepreneurial teaching to develop enterprising minds for the workforce. More recently, curricula reforms re-emphasise the importance that entrepreneurial skills play in creating an innovative and creative cohort of workers.

There is no real systematic manner of entrepreneurship education in initial teacher education in Scotland, though, despite a requirement for students who wish to be registered with the General Teaching Council for Scotland (GTCS), to gain a standard which illustrates that they have acquired knowledge in relation to developing enterprising attitudes for the students they teach.

The University of Strathclyde has been found to provide entrepreneurship education as a specific module. This activity is presented in greater detail.

Background information about teacher education in the UK-Scotland

In Scotland higher education is taught in universities and colleges/ institutions of higher education. The following higher education training pathways exist:

- Undergraduate Degree - Bachelor Degree in Education (B.Ed) (4 years);
- Postgraduate Degree - for those with an existing degree, an additional one year university course, the Professional Graduate Diploma in Education (PGDE) leading to a Primary, Secondary or Further Education Teaching Qualification (TQ).

Since the 1980s, all courses leading to school teaching have been given degree status²¹⁰.

To become a school teacher in a publicly funded school, initial training and a Teaching Qualification (TQ) are required. This allows the teacher to become registered with the General Teaching Council for Scotland (GTCS), following a one-year probationary period to ensure that the standard for full registration is met. GTCS is an independent professional body which maintains and improves teachers' professional standards and contributes to improving the quality of teaching and learning in Scotland.²¹¹

To teach at the primary or pre-primary level students can undertake either a four year B.Ed qualification or a one-year PGDE (Primary). All degree qualifications enable entrance onto the PGDE (Primary) course – however, most primary teachers utilise the B.Ed route. Often, students wishing to be secondary school teachers gain an undergraduate degree in the subject they wish to teach, following which they undertake a one year Professional Graduate Diploma in Education (PGDE)²¹², leading to a TQ Secondary. As part of the course, students spend 18 of 36 weeks on a school

Scotland

Comprehensive strategy, 'Determined to Succeed', since 2001/2002 – all teachers are required to have an understanding of enterprise in education.

Despite this, not many activities in teacher education institutions could be found.

Case Study:

Strathclyde University

²¹⁰ EURYDICE (2009/10) 'Structures of Education and Training Systems in Europe – UK – Scotland'

²¹¹ More information: <http://www.gtcs.org.uk/>

²¹² EURYDICE (Sept 2009), op.cit. p7

placement. For technology teachers, part of the placement includes six week industry placement.

The majority of teaching available in undergraduate courses is focused on primary level education – or a combination of primary and secondary, whilst at the postgraduate level the spread is more evident across primary and secondary teaching.

Entrepreneurship education within the national education strategy

Entrepreneurship education is visible in education policy and curriculum and emphasised as an important element to teaching.

Enterprise education was introduced in Scotland in response to the various challenges which the country faced, including school leavers unprepared for the world of work and the worrying rise of young people not in education, employment or training.²¹³ The first programme to be launched in the early 1990s was the Enterprise Awareness in Teacher Education programme. From this programme, Teacher Education Institutions (TEIs) developed modules or units to enhance industry awareness amongst trainee teachers²¹⁴. The policy has been adapted over the years.

A review of the effectiveness of education for work and enterprise in schools was undertaken in 2001 which led to a vision for enterprise education in Scotland entitled *Determined to Succeed*²¹⁵. The strategy emphasises the need to ensure that enterprising attitudes and skills are developed across the whole curriculum through an understanding and experience of the 'world of work' and through an education focused on a career. Since 2002, the Scottish Government has launched the strategy *Determined to Succeed*²¹⁶ and the School Enterprise Program²¹⁷ aimed at training teachers to deliver enterprise education.

The strategy *Determined to Succeed* is aimed at enhancing the entrepreneurial mindset of future teachers as well as of teachers in-service, providing them with training on the use of enterprise approaches to teaching and learning, and encouraging them to be enterprising. It also stresses the importance of teachers having some understanding of the economy and how businesses operate and understanding the role and importance of links between education and the world of work for which young people are being prepared²¹⁸.

The Skills for Scotland strategy in 2007 emphasised enterprise education as a key part of education – looking, for the first time, at the skills and outcomes developed through the school curriculum and it reemphasised the Scottish commitment to enterprise

'Determined to Succeed'- strategy (Scotland, 2002)

- Based on a preceding program launched in the 1990s;
- Aimed at enhancing the entrepreneurial mindset of future teachers as well as of teachers in-service;
- Supported by the Skills of Scotland Strategy (2007) and a UK-wide strategy of 2008;
- New education curriculum, 'A Curriculum for Excellence' in 2009 sees enterprise education as a cross-cutting theme for education.

²¹³ <http://www.strath.ac.uk/sen/media/enterprisematters/issue19/unescounitwin/>

²¹⁴ <http://www.scotland.gov.uk/Publications/2002/12/15980/15415>

²¹⁵ Scottish Executive (2002) 'Determined to Succeed: A Review of Enterprise in Education' URL: <http://www.scotland.gov.uk/Resource/Doc/46932/0028821.pdf>

²¹⁶ http://www.determinedtosucceed.co.uk/dts/dts_display_home.jsp

²¹⁷ <http://www2.warwick.ac.uk/fac/soc/cedar/projects/completed04/evaluationsep/sepreportjune04.pdf>

²¹⁸ <http://www.scotland.gov.uk/Publications/2002/12/15980/15415>

education and the subsequent 'appetite for innovation, ambition and wealth creation'²¹⁹. The development of these skills is reiterated by the new education curriculum, 'A Curriculum for Excellence', first implemented in 2009²²⁰, which led to enterprise education being seen as a cross-cutting theme for education alongside citizenship, sustainable development and health and wellbeing,²²¹ rather than as an 'add on'. The goal of *Curriculum for Excellence*²²² is 'to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor'. This has led to experiential learning being a core part of the curriculum for learners as focus is put on the experiences and outcomes of learning, and looking to provide a more flexible and adaptable workforce for the future.

In order to achieve the objectives of the strategy, the Scottish Government provides funding for schools, local authorities and universities. In addition, the government has also appointed a person in charge of enterprise education at each local authority level who cooperates with local schools.

The government has also published various documents and guidelines related to enterprise education, for instance the *Guidelines of Initial Teacher Education Courses in Scotland* (SOEID 1998) and the *Standard for Initial Teacher Education in Scotland* (2000). 'Within these existing guidelines it is possible to identify appropriate contexts for entrepreneurship education related input, for example in courses related to learning theories, understanding of links with the community, the role of specialists within the school, for example career and guidance teachers'.²²³

The strategy's importance was supplemented in 2008, by a UK-wide strategy²²⁴ emphasising a need to support enterprise education over the following decade. The government strategy included a £30 million investment to move enterprise education from purely secondary education to the primary and tertiary level and the development of a national enterprise academy. This UK level strategy, whilst guiding, leads the devolved administrations of the UK, including Scotland, to act on supporting enterprise with little guidance as to how this is to be achieved.

In 2010, a refreshed 'Skills for Scotland' strategy was published and it identified enterprise and entrepreneurial skills as those which were crucial to productivity and success²²⁵ and reiterated the importance of enterprise in education being embedded into the curriculum at every stage.

Website screening results

One elective module in initial teacher education was identified.

Six teacher education institutions

take the principles of entrepreneurship education into account by referring to the core values in their mission statement, in the teacher education curricula or by providing training by methods drawing on the pedagogy of entrepreneurship education.

Six of the institutions are currently engaged in research programmes related to the subjects of entrepreneurship, curriculum and innovation (not particularly on entrepreneurship in education).

²¹⁹ Scottish Government (2007) 'Skills for Scotland: A lifelong learning strategy' p.15 URL: <http://www.scotland.gov.uk/Resource/Doc/197204/0052752.pdf>

²²⁰ 'Curriculum for Excellence' URL: <http://www.ltscotland.org.uk/understandingthecurriculum/whatiscurriculumforexcellence/>

²²¹ URL: <http://www.scotland.gov.uk/Resource/Doc/98764/0023924.pdf>

²²² <http://www.ltscotland.org.uk/understandingthecurriculum/whatiscurriculumforexcellence/index.asp>

²²³ <http://www.scotland.gov.uk/Publications/2002/12/15980/15415>

²²⁴ DBERR (2008) 'Enterprise: Unlocking the UK's Talent' URL: <http://www.berr.gov.uk/files/file44992.pdf>

²²⁵ Scottish Government (2010) 'Skills for Scotland: Accelerating the Recovery and Increasing Sustainable Economic Growth' URL: <http://www.scotland.gov.uk/Resource/Doc/326739/0105315.pdf>

Implementation of entrepreneurship education in teacher education

Since 2006, following the completion of initial teacher education, teachers who wish to register with the General Teaching Council for Scotland (GTC) have to achieve the Standard for Initial Teacher Education (SITE)²²⁶. As part of SITE teachers must illustrate that in addition to knowledge of the core curriculum they have:

'Acquire(d) the knowledge and understanding to fulfil their responsibilities in respect of cross-curricular themes including ..., enterprising attitudes, as appropriate to the sector and stage of education'.

Consequently, all teachers in Scotland are required to acquire the necessary knowledge and understanding of enterprise in education. However, entrepreneurship education does not seem to be a core part of initial teacher education – at least it is not very distinctively advertised on the websites of teacher education institutions.

The website screening did not bring about many references to entrepreneurship education²²⁷ in teacher education programmes (please consult annex 4 for more details). One reason for this contradiction could be that the necessary experience required might be developed by experience gained through school placements.

In the University of Strathclyde, a module or learning content called 'Enterprise' could be identified in the education of future secondary teachers (Professional Graduate Diploma in Education – PGDE). In another university, 'Enterprise' was mentioned as a cross-curricular subject for primary teachers.

It should be noted however, that there was a lack of information on many of the websites – with the exception of the University of Strathclyde, where modular information was provided.

²²⁶ <http://www.gtcs.org.uk/standards/standard-initial-teacher-education.aspx>

²²⁷ In Scotland, the term 'enterprise education' is more common than 'entrepreneurship education'. Therefore, 'enterprise education' and other related search terms (enterprising, entrepreneurial (learning), etc.) were also included in the website screening.

University of Strathclyde-School of Education

Facts about the activity²²⁸

The School of Education came into being in August 2010 as part of the new Faculty of Humanities and Social Sciences. Its aim is to contribute to the University of Strathclyde's vision of being a place of useful learning, building on strengths in research, in teaching and learning and in knowledge exchange.²²⁹

The school has been a pioneer in implementing entrepreneurship education - referenced to in Scotland as enterprise education - in teacher education. To enhance the entrepreneurial mindset of future teachers, the school has developed a specific optional module named 'Enterprise in Education'.

The module explores the nature of enterprising approaches which use real learning experiences in the classroom to encourage leadership, self-confidence, flexibility, creativity, problem-solving abilities and team-working and encourages students to use such approaches when they are teaching.²³⁰ It comprises 36 hours of teaching over two years for students enrolled in the B.ed programme. The first part of the module consists of setting up a small business project, from which students can reflect about its benefits and its application in their teaching career. The second part of the module consists of various seminars where experts are invited to share their knowledge and experience about enterprise education and enterprising teachers.

Focus

- Optional module 'Enterprise in Education'
- Part 1: Setting up a business project
- Part 2: Discussions and reflections with experts

Among these experts are people from the Scottish Government, from local authorities, from Learning and Teaching Scotland, and from the business sector. Experts from the business sector, for instance, are invited to talk about the links between business and schools and about the qualities and skills an entrepreneur needs.

For PGDE students, the same module comprises 20 hours of teaching and seminars. In this case, there is no time for the business project. The focus is thus on seminars, and on reflecting about how to be an enterprising teacher.

Apart from this module, the school provides students with an informative session about enterprise education at the beginning of each year for all students enrolled in the B.ed and the PGDE. During this session, an expert on the subject is invited to talk about enterprise education and the discussion is directed around the question of what is enterprise education and what it means to be an enterprising teacher. So even if the students do not chose to undertake the module, they at least attend an informative session about enterprise education at the beginning of the year and thus gain an insight on enterprise education.

Outcome / impact of the activity

About twenty percent of the students enrolled at the School of Education are taking part the 'Enterprise in Education' module. Students gain insight into effective teaching and learning and often find themselves running very successful enterprising projects.

²²⁸ Information based on an interview with Linda Bronlow, Director of the Centre for Studies in Enterprise, Career Development and Work (Enterprising Careers), conducted by GHK in May 2011.

²²⁹ <http://www.strath.ac.uk/humanities/education/>

²³⁰ <http://www.strath.ac.uk/sen/media/enterprisematters/issue20/enterpriseineducation/>

Representatives of the university have noted that student teachers are often apprehensive about embarking on such projects when they first learn about them. However, they quickly adapt to the challenge and enjoy their tasks. A big number of students even decide to write their final dissertation on the subject of enterprise education and its application in schools.²³¹

Context and history of the activity

The module 'Enterprise in Education' was implemented in 2001 and has been running for about 11 years now. It emerged from an initiative of Strathclyde University itself, although it is embedded in the National Strategy of Scotland and has evolved throughout the years according to changes and amendments in national strategies (cf. Section 1.3). The university has received funding from the Scottish Government and from business partners.

The School of Education at Strathclyde also participates in the UNESCO UNITWIN network, supporting higher education partnerships and north-south collaboration. The network aims at building capacity in each of the partner institutions in order to empower them to take forward entrepreneurial education in their country and at creating a sustainable platform for information sharing and knowledge exchange between the partners.²³²

Success factors

- Support by a comprehensive government strategy;
- Participation in international projects to extend networks, gain new insights and new impulses;
- Students get the opportunity to familiarize themselves with the subject in compulsory introductory sessions.

Lessons learnt

The initiative in Strathclyde is embedded in the overall Scottish policy and has benefitted from the support that came with it. During the past decade, the School of Education at Strathclyde has demonstrated to be an active actor in promoting enterprise education and in applying the government's objectives. Since student teachers are often apprehensive of the subject and not yet familiar with its contents, the school provides informative sessions about enterprise education at the beginning of each year for its students and offers them the possibility to enrol the elective module 'Enterprise in Education' to foster their enterprising skills. Apart from the course programme, the School of Education also actively participates in international projects promoting enterprise education to enhance its own network and to gain new insights and impulses.

Further information

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²³¹ Interview with Linda Brownlow, May 2011

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ANNEXES

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CRO - South East European Centre for Entrepreneurial Learning, URL:

<http://www.seecel.hr/>

Comenius, Leonardo and Erasmus compendia, URL:

http://eacea.ec.europa.eu/llp/results_projects/project_compendia_en.php

Copie and Copie2, URL: <http://copie.esflive.eu/> and

<http://www.copie2.es/blog/?lang=en>

Entredu project, URL: www.entredu.com KSLLL, URL:

<http://www.kslll.net/PeerLearningClusters/clusterDetails.cfm?id=14>

European Social Fund, URL:

http://ec.europa.eu/employment_social/esf/projects/projects_en.htm

Eurydice database, URL:

http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php

NCGE (National Council for Graduate Entrepreneurship), URL: <http://www.ncge.com/>

SBA database, URL: <http://ec.europa.eu/enterprise/policies/sme/best-practices/database/SBA/index.cfm?fuseaction=practice.list>

Stimulating Entrepreneurial Education and Training (SEET),

<http://www.seetnetwork.eu>

Annex 2 Main headings of the web-site screening template

Background information

- Name of the institution providing teacher education / Weblink / Please provide an indication of the size/importance of the institution in the national context.

General overview of the institution

- Does the institution refer to innovative/creative and/or student-centred approaches in its mission statement? If yes, please describe;
- Please provide the number of initial teacher education programmes offered by the institution (excluding VET).

Teacher education programmes

- Name of the programme / Level of study / Target group;
- Does the programme refer to the core aims of entrepreneurship education? If yes, please describe;
- Can you identify learning outcomes or skills, knowledge and attitudes which are relevant for entrepreneurship education? If yes, please describe;
- Does the programme use working methods/pedagogy which draw on the pedagogy of entrepreneurship education? If yes, please describe;
- What skills, knowledge and attitudes are meant to be fostered through this pedagogical method?

Modules/activities provided by the programme and which may be relevant for entrepreneurship education

- Does the website provide an overview of the courses/activities offered by the programme?
- Please list here all compulsory classes/modules which may be relevant for entrepreneurship education;
- Please list here all elective/non-mandatory classes/modules which are relevant for entrepreneurship education.

Entrepreneurship education provided by the programme

- Does the programme include entrepreneurship education? If yes, please specify.

Pedagogy

- Can you identify pedagogical methods within the programme and which draw on the pedagogy of entrepreneurship education? If yes, please describe.

Research

- Can you identify research programmes that may be relevant for entrepreneurship education? If yes, please add the name(s) of relevant programmes/projects;
- Please specify to what the extent research programmes are relevant for entrepreneurship education (i.e. aims, learning outcomes, etc. relevant for entrepreneurship education).

Initial assessment of the institution

- Please rate the level of information provided by the website.
- Does the institution participate in projects/programmes on entrepreneurship and teacher education? Choose from drop-down menu, i.e.
 - The institution provides entrepreneurship education
 - Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated
 - There are no clear indications that the institution has engaged in entrepreneurship education or innovative approaches
 - Impossible to assess (e.g. due to insufficient information)"

Annex 3 Interview questions

Part 1: Facts about the activity (Country, Name of institution, Name, contact details and function of interview partner, Name of activity)

- Could you please describe the activity briefly? (E.g. aim, practical activities, target group – please verify the information stated in the template!)
- Who is the target group of the activity?
- How is the activity implemented in teacher education? (As a compulsory or elective module, as extracurricular activity, as horizontal educational approach of the whole university etc. – please verify the information stated in the template!)
- Which aspects of entrepreneurship education are covered by the activity? (Does the activity address "knowledge", "skills" or "attitudes and values" which are relevant for entrepreneurship education (as described in the initial guidance note)?)
- Is the activity optional or compulsory? (n/a for horizontal approach)
- Delivery method of the activity (Please specify if cross-curricular competence or traditional teaching/learning, project learning, traineeships within companies, etc).
- Are pedagogical methods used which draw on the pedagogy of entrepreneurship education? (Please refer to initial guidance note).
- Duration and timeframe
- Please specify whether the activity is implemented throughout the duration of the studies or at specific times, please specify ECTS points – if applicable (n/a for horizontal approach)
- If horizontal approach – what does the institution do to implement the approach? Which concrete measures are there in place for student teachers? Which methods are used?
- If horizontal approach, indicate which range – whole institution, faculty of teacher education, skills and attitudes aimed at for teachers, specific programme etc.

Part 2: Outcome / Impact of the activity

- Expected outcomes – what was intended to be achieved by the activity? (E.g. Development of core entrepreneurship competences, enhanced self-confidence and self-motivation, more adaptable and creative individuals, more positive attitudes to risk taking, enhanced business management skills, greater active citizenship, more creative and adaptable workforce, more potential entrepreneurs)
- For horizontal approach: Ask specifically for impact on teachers preparation for entrepreneurship education
- What has been achieved by the activity? (E.g. Development of core entrepreneurship competences, enhanced self-confidence and self-motivation, more adaptable and creative individuals, more positive attitudes to risk taking, enhanced business management skills, greater active citizenship, more creative and adaptable workforce, more potential entrepreneurs)
- For horizontal approach: Ask specifically for impact on teachers preparation for entrepreneurship education
- Figures: Which percentage of the target group has been reached by the activity? How is that measured?
- How is the impact on teachers? How is that measured?
- How is the impact on students? How is that measured?
- If there are tools involved, do teachers use them? How is that measured?
- Do business people take part in education? E.g. do they teach students or are they responsible for parts of the activity?

Part 3: Policy context

- When was the activity set up? Specify date when the activity was first run
- For horizontal approach: Since when pursues the institution/faculty this kind of approach?
- How did it start? (Provide information on the history of the implementation)
- Where did it come from? (National or federal policy initiative or own initiative, reform of educational system etc.)
- Which conditions have been put in place to realize this initiative and by whom? (Provide information on the resources necessary (budget, staff training, internal reforms, other resources)
- What would you need to do more? (Provide information on the resources necessary (budget, staff training, internal reforms, other resources)

Part 4: Additional activities in the context of entrepreneurship education

- Does the institution participate in projects/programmes on entrepreneurship and teacher education? (If yes, please specify the following, if available: Project name, brief project description (e.g. aim, target group), expected (or actual) outcomes)
- For horizontal approach: Are there any concrete measures on entrepreneurship and teacher education?
- Does the institution provide the following?
 - Continuing education opportunities on entrepreneurship for teachers (If yes, please specify the following, if available: Project name, brief project description (e.g. aim, target group), expected (or actual) outcomes)
 - Continuing education opportunities on entrepreneurship for schools' managers (If yes, please specify the following, if available: Project name, brief project description (e.g. aim, target group), expected (or actual) outcomes)
 - On-the-job training opportunities for teachers aimed at entrepreneurship education (If yes, please specify the following, if available: Project name, brief project description (e.g. aim, target group), expected (or actual) outcomes)
 - Cooperation with Centre for Entrepreneurship (is there a centre for entrepreneurship implemented in the institution? Is there a local centre that the institution works together with? If yes, please specify how and on which aspects.
 - Cooperation with entrepreneurs' organisations (does the institution cooperate with external bodies or entrepreneurs' organisations? If yes, please specify how and on which aspects.
- Has there been an in-house/institutional culture geared towards entrepreneurship? (e.g. positive attitude towards entrepreneurship, 'entrepreneurship champions' among teaching staff)

Part 5: What can be learned from this case?

- How did the institutional learning process go? (E.g. who had to be convinced, which hurdles had to be overcome, is it widely accepted/supported?)
- Are there experiences and mistakes to learn from?
- What would you say: Is this approach transferable? If yes – under which conditions? If no – why not?

Annex 4 List of teacher education institutions screened

| | Name of institution | Website | Provision of element of entrepreneurship education in initial teacher education (final assessment) |
|----------------|---|---|---|
| Austria | | | |
| 1 | University of Vienna, Fakultät für Philosophie und Bildungswissenschaft | http://philbild.univie.ac.at/studium/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 2 | Karl-Franzens-Universität Graz, Geisteswissenschaften Fakultät | http://www.uni-graz.at/lispwww/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 3 | University of Salzburg | http://www.uni-salzburg.at/portal/page?_pageid=181,87838&_dad=portal&_schema=PORTAL | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 4 | Universität Innsbruck, Fakultät für Bildungswissenschaften | http://www.uibk.ac.at/fakultaeten/bildungswissenschaften/ | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated ²³³²³⁴ |
| 5 | Johannes Kepler Universität Linz, Institut für Pädagogik und Psychologie | http://paedpsych.jk.uni-linz.ac.at/PPP/profil.shtml | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated ²³⁵ |
| 6 | Alpen-Adria-Universität Klagenfurt, Institut für Erziehungswissenschaft und Bildungsforschung | http://www.ifeb.uni-klu.ac.at/index.php?id=92 | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 7 | Donau-Universität Krems | http://www.donau-uni.ac.at/de/studium/kulturbildung/managementpaedagogik/index.php | Excluded from screening - University provides postgraduate learning programs for teachers and managers in the educational sector ("Educational leadership"). Aimed at are management skills for teachers in management positions. |

²³³ The general criteria for this assessment as are outlined on page 32 of this report.

²³⁴ This institution has been rated as "providing entrepreneurship education" during the initial website screening.

²³⁵ This institution has been rated as "providing entrepreneurship education" during the initial website screening.

| | | | |
|----|---|---|--|
| 8 | Fachhochschule Salzburg GmbH | http://www.fh-salzburg.ac.at/studium-lehre/hochschuldidaktik/konzept/inhalt/ | Excluded from screening – No teacher education programmes |
| 9 | Fachhochschule Vorarlberg GmbH | http://www.fhv.at/studium/lehre | Excluded from screening – No teacher education programmes |
| 10 | Pädagogische Hochschule Kärnten (Carinthia) | www.ph-kaernten.ac.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 11 | Pädagogische Hochschule Niederösterreich | http://www.ph-noe.ac.at | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated ²³⁶ |
| 12 | Pädagogische Hochschule Steiermark | http://www.phst.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 13 | Pädagogische Hochschule Oberösterreich | www.ph-ooe.at | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated ²³⁷ |
| 14 | Pädagogische Hochschule Salzburg | www.phsalzburg.at | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 15 | Pädagogische Hochschule Tirol (Tyrol) | www.ph-tirol.ac.at | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 16 | Pädagogische Hochschule Vorarlberg | http://www.ph-vorarlberg.ac.at | Although entrepreneurship education in initial teacher education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 17 | Pädagogische Hochschule Wien (Vienna) | http://www.phwien.ac.at | The institution provides entrepreneurship education in initial teacher education ²³⁸ |

²³⁶ This institution has been rated as “providing entrepreneurship education” during the initial website screening.

²³⁷ This institution has been rated as “providing entrepreneurship education” during the initial website screening.

²³⁸ The general criteria for this assessment as are outlined on page 29 of this report.

| | | | |
|----|--|--|--|
| 18 | Hochschule für Agrar- und Umweltpädagogik Wien | www.agrarumweltpaedagogik.ac.at | Excluded from screening – Institution does not offer independent TE - only in cooperation with PH Niederösterreich |
| 19 | Kirchliche Pädagogische Hochschule in Wien/Krems | www.kphvie.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 20 | Kirchliche Pädagogische Hochschule | www.kph-es.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 21 | Kirchliche Pädagogische Hochschule der Diözese Graz-Seckau | www.kphgraz.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 22 | Private Pädagogische Hochschule der Diözese Linz | www.ph-linz.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 23 | Stiftung Private Pädagogische Hochschule Burgenland | http://www.ph-burgenland.at | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 24 | Katholische Pädagogische Hochschuleinrichtung Kärnten | http://www.kphe-kaernten.at | Excluded from screening – Institution provides exclusively education for teachers Catholic religion |
| 25 | Studiengang „Lehramt für jüdische Religion“ der Jüdischen Glaubensgemeinschaft | www.lauderchabad.at | Excluded from screening – Institution provides exclusively education for teachers Jewish religion |
| 26 | Privater Studiengang für das Lehramt für Islamische Religion an Pflichtschulen | http://www.irpa.ac.at | Excluded from screening – Institution provides exclusively education for teachers Islamic religion |
| 27 | Privater Hochschullehrgang für Islamische Religionspädagogische Weiterbildung/ IHL | http://www.ihl.ac.at | Excluded from screening – Institution provides exclusively education for teachers Islamic religion |
| | Total no. institutions | 27 / 19 screened | Providing entrepreneurship education: 1 institution Evidence for ongoing activities: 8 institutions |

| Belgium (Flemish community) | | | |
|------------------------------------|---|--|--|
| 1 | Artesis Hogeschool Antwerpen | www.artesis.be | The institution provides entrepreneurship education in initial teacher education |
| 2 | Erasmushogeschool Brussel | www.erasmushogeschool.be/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 3 | Ghent University | www.ugent.be/en | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 4 | Group T-International University College Leuven | www.groept.be | The institution provides entrepreneurship education in initial teacher education |
| 5 | HUB-EHSAL | www.ehsal.be | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 6 | Karel de Grote-Hogeschool - Katholieke Hogeschool Antwerpen | www.kdg.be/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 7 | Katholieke Hogeschool Brugge-Oostende | www.khbo.be/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 8 | Katholieke Hogeschool Kempen | www.khk.be/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 9 | Katholieke Hogeschool Leuven | www.khleuven.be/ | The institution provides entrepreneurship education in initial teacher education |
| 10 | Katholieke Hogeschool Limburg | www.khlim.be | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 11 | Katholieke Hogeschool Sint-Lieven | www.kahosl.be/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |

| | | | |
|----|--|---|--|
| 12 | Katholieke Hogeschool Zuid-West-Vlaanderen | www.katho.be/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 13 | Lessius Mechelen | www.lessius.eu/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 14 | Plantijn-Hogeschool van de provincie Antwerpen | www.plantijn.be | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 15 | Provinciale Hogeschool Limburg | www.phl.be | The institution provides entrepreneurship education in initial teacher education |
| 16 | University College Arteveldehogeschool | www.arteveldehs.be | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 17 | University College Ghent | english.hogent.be/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 18 | XIOS Hogeschool Limburg | www.xios.be | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 19 | Katholieke Universiteit Leuven | www.kuleuven.be | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 20 | University of Antwerp - Institute for Education and Information Sciences | http://antwerp.academia.edu/Departments/Institute_of_education_and_information_sciences | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| | Total no. institutions | 20 | Providing entrepreneurship education: 4 institutions Evidence for ongoing activities: 5 institutions |

| Croatia | | | |
|----------------|---|---|--|
| 1 | University of Osijek - Pedagoški fakultet (School of Education) | https://www.ffos.hr/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 2 | Pedagoški fakultet u Puli (School of Education, Pula) | www.ffpu.hr/ | The institution provides entrepreneurship education in initial teacher education |
| 3 | University of Rijeka, Faculty of Teacher Education | www.ufri.uniri.hr | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 4 | Visoka učiteljska škola (Teachers' College) | http://www.vusst.hr/ | Excluded from screening – insufficient information |
| 5 | University of Split (Faculty of Natural Sciences, Mathematics and Education) | www.unist.hr/eng/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 6 | University of Zadar (Department of Teachers' and Preschool Teachers' Education) | http://www.unizd.hr/tabid/106/Default.aspx | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 7 | University of Zagreb (Faculty of Teacher Education) | http://www.ufzg.hr/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| | Total no. institutions | 7/ 6 screened | Providing entrepreneurship education: 1 institution |

| Finland | | | |
|----------------|---|---|--|
| 1 | University of Helsinki - Department of Teacher Education | http://www.helsinki.fi/teachereducation/ | The institution provides entrepreneurship education in initial teacher education |
| 2 | University of Jyväskylä - The Faculty of Education | https://www.jyu.fi/edu/en/ | The institution provides entrepreneurship education in initial teacher education |
| 3 | Åbo Akademi University – Faculty of Education | http://www.abo.fi/student/pf | The institution provides entrepreneurship education in initial teacher education |
| 4 | University of Oulu, Faculty of Teacher Education | http://www.wedu.oulu.fi/english/ | The institution provides entrepreneurship education in initial teacher education |
| 5 | University of Turku – Faculty of Education | http://www.edu.utu.fi/en/ | The institution provides entrepreneurship education in initial teacher education |
| 6 | University of Eastern Finland (includes former University of Joensuu) | http://www.uef.fi/english | The institution provides entrepreneurship education in initial teacher education |
| 7 | University of Lapland – Faculty of Education | http://www.ulapland.fi/InEnglish/Studies.iw3 | The institution provides entrepreneurship education in initial teacher education |
| 8 | University of Tampere - Faculty of Education | http://www.uta.fi/tiedekunnat/kasv/english/index.php | The institution provides entrepreneurship education in initial teacher education |
| | Total no. institutions | 8 | Providing entrepreneurship education: 8 institutions |

| Hungary* | | | |
|-----------------|---|---|--|
| 1 | Corvinus University of Budapest, Faculty of Social Sciences | http://www.uni-corvinus.hu/index.php?id=12961 | The institution provides entrepreneurship education in initial teacher education |
| 2 | University of Debrecen, Institute of Pedagogical Sciences | http://ni.unideb.hu/index.php | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 3 | Eötvös Loránd University, Faculty of Elementary and Nursery School Teachers' Training | http://www.elte.hu/en/elementary_and_nursery_school_teachers | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 4 | Budapesti Műszaki és Gazdaságtudományi Egyetem (BME)** | http://mpt.bme.hu/index.php?option=com_content&view=article&id=91&Itemid=31&lang=hu | The institution provides entrepreneurship education in initial teacher education |
| 5 | University of Kaposvár, Faculty of Pedagogy | http://oldportal.ke.hu/index.php?p=latogatok1130 | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 6 | University of West Hungary, Sopron, Benedek Elek Faculty of Pedagogy | http://www.uniwest.hu/index.php/2368/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 7 | Pannon University, Veszprém, Faculty of Modern Philology and Social Sciences | http://englishweb.uni-pannon.hu/index.php?option=com_content&task=view&id=8&Itemid=1 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 8 | Szent István University, Faculty of Education, Gödöllő | http://www.sziu.hu/node/35 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 9 | University of Pécs, Illyés Gyula Faculty of Education | http://english.pte.hu/menu/100/26 | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 10 | University of Szeged, Gyula Juhász Faculty of Education | http://www.jgytf.u-szeged.hu/en/index.html | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 11 | Károli Gáspár University of the Reformed Church, Faculty of Teacher Training | http://www.karolitfk.hu/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |

| | | | |
|----|---|---|--|
| 12 | Liszt Ferenc Zeneművészeti Egyetem (LFZE)*** | http://www.zeneakademia.hu/oktatas/tanarkepzes | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 13 | Magyar Képzőművészeti Egyetem (MKE)**** | http://www.mke.hu/info/pedagogia.php | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 14 | University of Miskolc | http://www.ctif.hu/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 15 | Pázmány Péter Catholic University, Budapest | http://www.btk.ppke.hu/kepzesek/alapkepzes-ba/kurzuskinlat/nappali-tagozat-ba-alapkepzes.html | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 16 | Kecskemét College | http://www.ketif.hu/index.php?option=com_content&task=view&id=22&Itemid=141 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 17 | College of Dunaújváros, Department for Teacher Training | http://portal.duf.hu/main.php?folderID=1835 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 18 | Eszterházy Károly College, Eger, Faculty of Teacher Training and Knowledge Technology | http://www.ektf.hu/ujweb/index_en.php?page=65 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 19 | Apor Vilmos Catholic College, Vác | http://www.avkf.hu/eng/index.php/degree-programmes-offered-in-hungarian | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 20 | Semmelweis University, Budapest | http://tf.hu/oktatas/kepzesek/bsc/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 21 | Kölcsey Ferenc Teacher Training College, Faculty of Pedagogical Sciences and Psychology | http://www.kfrtkf.hu/index.php?option=com_content&task=view&id=129&Itemid=67 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 22 | Eötvös József College, Baja, Institute of Teacher Training | http://ujweb.ejf.hu/szervezeti-felepitese/pedagoguskepzes-intezet | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |

| | | | |
|----|---|---|--|
| 23 | College of Nyíregyháza, Faculty of Teacher Training | http://www.nyf.hu/pkk/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 24 | Kodolányi János University College, Székesfehérvár | http://www.kodolanyi.hu/intezetek/nevelestudomanyi_tanszek/neveles_tanszekrol | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| | Total no. institutions | 24 | Providing entrepreneurship education: 2 institutions Evidence for ongoing activities: 3 institutions |

| Netherlands | | | |
|--------------------|--|---|--|
| 1 | Leiden University, Institute of Education and Child Studies (social and behavioural sciences) | http://www.socialsciences.leiden.edu/educationandchildstudies/ | Excluded from screening – No teacher education programmes |
| 2 | University of Groningen, Centre for Learning and Teaching | http://www.rug.nl/uocg/lerarenopleiding/index | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 3 | Utrecht University, Faculty of Social and Behavioural Sciences, Department of Pedagogical and Educational Sciences | http://www.uu.nl/faculty/socialsciences/en/organisation/Departments/pedagogicalandeducationalsciences/Pages/default.aspx | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 4 | Maastricht University, Teachers Academy | http://www.maastrichtuniversity.nl/web/Faculties/FHS/TeachersAcademy.htm | The institution provides entrepreneurship education in initial teacher education |
| 5 | University of Amsterdam, Faculty of Social and Behavioural Sciences, Department of Child Development and Education | http://www.fmg.uva.nl/child_development_education | The institution provides entrepreneurship education in initial teacher education |
| 6 | VU University Amsterdam, Centre for Educational Training, Assessment and Research | http://www.onderwijscentrum.vu.nl/nl/info-voor/researchers/index.asp | Excluded from screening – No teacher education programmes |
| 7 | Driestras Hogeschool | http://english.driestar-hogeschool.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 8 | Institute for Christian education offers 6 programmes targeting prospective teachers | http://english.driestar-hogeschool.nl/Current_projects | Belongs to Driestras Hogeschool |
| 9 | Kempel University Teacher Education College | http://www.kempel.nl/Pages/Default.aspx | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |

| | | | |
|----|---|---|--|
| 10 | Hogeschool Domstad University of professional teacher Education | http://www.domstad.nl/ | Excluded from screening – Fusion with Utrecht University of Applied Science |
| 11 | Hogeschool Edith Stein OCT University of professional teacher education | http://www.edith.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 12 | Hogeschool Leiden, University of Applied Sciences | http://www.hsleiden.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 13 | IPABO Amsterdam, Alkmaar, University of professional teacher education | http://www.hs-ipabo.edu/sf.mcgi?1 | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 14 | Iselinge University of professional teacher education | http://www.iselinge hogeschool.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 15 | Marnix Academie, Institute for teacher training | http://www.marnixacademie.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 16 | Reformed University Zwolle | http://www.gh.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 17 | STOAS University of professional teacher training | http://www.stoashogeschool.nl/ | The institution provides entrepreneurship education in initial teacher education |
| 18 | Zuyd University | http://www.hszuyd.nl/index.jsp?content=-1&locale=nl_NL | The institution provides entrepreneurship education in initial teacher education |
| 19 | INHolland University of Applied Sciences (campuses in 9 different cities) | http://www.inholland.nl | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 20 | Avans University of Applied Sciences (campuses in 3 different locations) | http://www.avans.nl/ | The institution provides entrepreneurship education in initial teacher education |
| 21 | Hogeschool van Amsterdam, University of Applied Sciences | http://www.hva.nl/index.htm | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 22 | Stenden University of Applied Sciences (Hogeschool Drenthe) | http://www.stenden.com/nl/Pages/default.aspx | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |

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|----|---|---|--|
| 23 | HAN University of Applied Sciences Nijmegen | http://www.han.nl/ | The institution provides entrepreneurship education in initial teacher education |
| 24 | Helicon University, based on antroposophy | http://www.hhelicon.nl | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 25 | NHL University of Applied Sciences Leeuwarden | http://www.nhl.nl/nhl/14/home.html | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 26 | Rotterdam University of Applied Sciences | http://www.hogeschool-rotterdam.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 27 | Fontys University of Applied Sciences (campuses in 3 different locations) | http://www.fontys.nl/ | The institution provides entrepreneurship education in initial teacher education |
| 28 | HZ University of Applied Sciences | http://hz.nl/HZ/NL | The institution provides entrepreneurship education in initial teacher education |
| 29 | Saxion University of Applied Sciences | http://www.saxion.edu/ | Excluded from screening – No teacher education programmes |
| 30 | Hogeschool Utrecht University of Applied Sciences | http://www.hu.nl/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 31 | Hogeschool voor Pedagogisch en Sociaal-Agogisch Onderwijs Groningen | http://www.spo-groningen.nl/site/ | Excluded from screening – No teacher education programmes |
| | Total no. institutions | 31 / 25 screened | Providing entrepreneurship education: 8 institutions Evidence for ongoing activities: 1 institutions |

| | | | |
|---|---------------------------|--|--|
| | Norway | | |
| 1 | Universitetet I Stavanger | www.uis.no | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 2 | University of Agder | www.uia.no/en | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |

| | | | |
|----|--|---|--|
| 3 | University of Tromsø | http://www2.uit.no/ikbViewer/page/startside | The institution provides entrepreneurship education in initial teacher education |
| 4 | University of Bergen | http://www.uib.no/education/studies/teacher-training-and-pedagogy | The institution provides entrepreneurship education in initial teacher education |
| 5 | Norwegian University of Science and Technology (NTNU) in Trondheim | http://www.ntnu.edu/ped | The institution provides entrepreneurship education in initial teacher education |
| 6 | Oslo University College | www.hio.no/Welcomes-to-OUC | The institution provides entrepreneurship education in initial teacher education |
| 7 | Sør-Trøndelag University College | http://hist.no/english/ | The institution provides entrepreneurship education in initial teacher education |
| 8 | Vestfold University College | www.hive.no | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 9 | NLA Høgskolen i Bergen | http://www.nla.no/om/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 10 | Akershus University College | www.hiak.no | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 11 | Bergen University College | www.hib.no/english/index.html | The institution provides entrepreneurship education in initial teacher education |
| 12 | Bodø University College | www.hibo.no/english | The institution provides entrepreneurship education in initial teacher education |
| 13 | Buskerud University College | www.hibu.no/english | The institution provides entrepreneurship education in initial teacher education |
| 14 | Finmark University College | www.hifm.no/index.php?lang=en | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 15 | Gjøvik University College | english.hig.no/ | Excluded from screening – No teacher education programmes |
| 16 | Harstad University College | www.hih.no/index.php?lang=eng | Excluded from screening – No teacher education programmes |
| 17 | Hedmark University College | www.hihm.no/hihm/English - | The institution provides entrepreneurship education in initial teacher education |

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|----|-------------------------------------|--|--|
| 18 | Lillehammer University College | www.hil.no/ | Excluded from screening – No teacher education programmes |
| 19 | Narvik University College | www.hin.no/index.php?lang=eng | Insufficient information |
| 20 | Nesna University College | www.hinesna.no/english | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 21 | Nord-Trøndelag University College | www.hint.no/hint/international | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 22 | Sogn og Fjordane University College | www.hisf.no/ | The institution provides entrepreneurship education in initial teacher education |
| 23 | Stord/Haugesund University College | www.hsh.no/english.htm | The institution provides entrepreneurship education in initial teacher education |
| 24 | Telemark University College | www.hit.no/eng | The institution provides entrepreneurship education in initial teacher education |
| 25 | Volda University College | www.hivolda.no/english | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 26 | Østfold University College | www.hiof.no/index.php?ID=3 | The institution provides entrepreneurship education in initial teacher education |
| 27 | Alesund University College | www.hials.no/eng | Excluded from screening – No teacher education programmes |
| 28 | Rudolf Steiner College of Education | www.steinercollege.edu | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| 29 | Norwegian Teacher Academy (NLA) | www.nla.no/english/ | There are no clear indications that the institution has engaged in entrepreneurship education in initial teacher education |
| | Total no. institutions | 29 / 24 screened | Providing entrepreneurship education: 12 institutions Evidence for ongoing activities: 5 institutions |

| <i>Portugal</i> | | | |
|-----------------|---|---|--|
| 1 | Psicologia e da Educação na Universidade da Beira Interior | https://www.ubi.pt/departamento.aspx?departamento=departamento de psicologia e educacao | There are no clear indications that the institution has engaged in entrepreneurship education |
| 2 | Universidade da Madeira | http://www.uma.pt/portal/modulos/curso/index.php?NV_MOD=MODCURSO&NV_EAGR=EAGR_ENSINOLST&TPESQ=PESQ_ENSINOLST&IDM=EN | The institution provides entrepreneurship education – but not in initial teacher education |
| 3 | Universidade da Aveiro, Education Department | http://www.ua.pt/de/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 4 | University of Coimbra, Psychology and Education Sciences | http://www.uc.pt/fpce | The institution provides entrepreneurship education – but not in initial teacher education |
| 5 | Universidade De Evora | http://www.ip.uevora.pt/en | There are no clear indications that the institution has engaged in entrepreneurship education |
| 6 | University of Lisbon, Faculty of Psychology and Education Sciences | http://www.fpce.ul.pt | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 7 | Universidade de Trás-os-Montes e Alto Douro | http://www.utad.pt/pt/index.asp | There are no clear indications that the institution has engaged in entrepreneurship education |
| 8 | Universidade do Minho | http://www.uminho.pt/default.aspx | There are no clear indications that the institution has engaged in entrepreneurship education |
| 9 | University of Porto, Faculty of Psychology and Educational Sciences | http://sigarra.up.pt/fpceup/web_page.inicial | Excluded from screening – provides no teacher education, only educational science |
| 10 | Universidade Nove de Lisboa, Faculty of Social Sciences and Humanities, Dep.of Educational Sciences | http://www.fcsh.unl.pt/deps/ciencias-da-educacao | There are no clear indications that the institution has engaged in entrepreneurship education |
| 11 | INUAF - Instituto Superior Dom Afonso III | http://www.inuaf-studia.pt/quem_somos/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 12 | Instituto Superior de Educação e Trabalho | http://www.iset.pt/index.htm | There are no clear indications that the institution has engaged in entrepreneurship education |
| 13 | Universidade Lusófona de Humanidades e Tecnologia, Institute for Educational Sciences | http://www.ulusofona.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 14 | Escola Superior de Educação, Comunicação e Desporto | http://www.esse.jpg.pt | There are no clear indications that the institution has engaged in entrepreneurship education |

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| 15 | Escola Superior de Educação de Beja | http://www.eseb.ipbeja.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 16 | Escola Superior de Educação de Bragança | http://www.eseb.ipbeja.pt/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 17 | Escola Superior de Educação de Castelo Branco | http://www.esec.ipcb.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 18 | Escola Superior de Educação de Coimbra | http://www.esec.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 19 | Escola Superior de Educação e Ciências Sociais de Leiria | http://www.esel.ipleiria.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 20 | Escola Superior de Educação de Lisboa | http://www.eselx.ipl.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 21 | Escola Superior de Educação de Portalegre | http://www.esep.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 22 | Escola Superior de Educação de Santarém | http://www.eses.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 23 | Escola Superior de Educação de Setúbal | http://www.esec.ips.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 24 | Escola Superior de Educação de Viana do Castelo | http://www.esec.ipvc.pt | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 25 | Escola Superior de Educação de Viseu | http://www.esev.ipv.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| 26 | Escola Superior de Educação do Porto | http://www.esec.ipp.pt | There are no clear indications that the institution has engaged in entrepreneurship education |
| | Total no. institutions | 26/ 25 screened | Providing entrepreneurship education: 0 institutions |

| Sweden | | | |
|--------|--|---|--|
| 1 | Halmstad University College | www.hh.se/english | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 2 | Karlstad University | www.kau.se/en | There are no clear indications that the institution has engaged in entrepreneurship education |
| 3 | University of Gothenburg (Göteborgs universitet) | www.gu.se/english | There are no clear indications that the institution has engaged in entrepreneurship education |
| 4 | Lund University | www.lunduniversity.lu.se/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 5 | Mälardalen University College | www.mdh.se/redirector?lang=en&redirectUrl=/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 6 | Malmö University College | www.mah.se/default_12978.aspx | There are no clear indications that the institution has engaged in entrepreneurship education |
| 7 | Mid Sweden University | www.miun.se/Mittuniversitetet-In-English/Home/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 8 | Örebro University | www.oru.se/English/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 9 | Stockholm University, Stockholm Institute of Education | http://www.su.se/pub/jsp/polopoly.jsp?d=6417 | There are no clear indications that the institution has engaged in entrepreneurship education |
| 10 | Södertörn University | http://webappo.web.sh.se/C1256C8A0066623D/tmt.vie/w/472C6E80B755CC26C1256C8B0015AEB5 | There are no clear indications that the institution has engaged in entrepreneurship education |
| 11 | Linköping University | www.liu.se/en/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 12 | Uppsala University, Department of Education | http://katalog.uu.se/orgInfo/?orgId=HS9 | There are no clear indications that the institution has engaged in entrepreneurship education |
| 13 | Umeå School of Education | http://www.use.umu.se/english/?languageld=1 | The institution provides entrepreneurship education in initial teacher education |

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|----|---|---|--|
| 14 | Luleå University of Technology - Department of Education | http://www.ltu.se/pol/d213/1.2712?l=en | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 15 | Linnaeus University | http://lnu.se/?l=en | There are no clear indications that the institution has engaged in entrepreneurship education |
| 16 | Borås University College, School of Education and Behavioural Sciences | www.hb.se/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 17 | Dalarna University College | http://www.du.se/en/Education/Subject-list/Pedagogical-Work/ | There are no clear indications that the institution has engaged in entrepreneurship education |
| 18 | Gävle University College - Faculty of Education and Business Studies | http://www.hig.se/Verktyg-i-hoger/In-English/About-the-University-of-Gavle.html | The institution provides entrepreneurship education in initial teacher education |
| 19 | Kristianstad University College, School of Teacher Education | http://www.hkr.se/templates/Page_6760.aspx | The institution provides entrepreneurship education in initial teacher education |
| 20 | Skövde University College, School of Humanities and informatics | http://www.his.se/english/university/Schools/humanities-and-informatics/ | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 21 | University College of Physical Education and Sports | www.gih.se/templates/ihNormalPage.aspx?id=729 | There are no clear indications that the institution has engaged in entrepreneurship education |
| 22 | University College West, The Department of Social and Behavioural Studies | http://www.hv.se/extra/pod/?action=pod_show&id=95&module_instance=12 | Although entrepreneurship education has not been identified, evidence suggests that entrepreneurship education may have been initiated |
| 23 | University College of Music Education | http://www.smpi.se/smi/eng.html | Excluded from screening – No teacher education programmes |
| | Total no. institutions | 23/22 screened | Providing entrepreneurship education: 3 institutions Evidence for ongoing activities: 7 institutions |

| UK (Scotland) | | | |
|----------------------|--|--|---|
| 1 | University of Strathclyde, Faculty of Education | http://www.strath.ac.uk/humanities/ | The institution provides entrepreneurship education in initial teacher education |
| 2 | University of Aberdeen, School of Education | www.abdn.ac.uk | The institution provides entrepreneurship education in initial teacher education |
| 3 | University of Dundee, School of Education, Social Work and Community Education | www.dundee.ac.uk/eswce | There are no clear indications that the institution has engaged in entrepreneurship education |
| 4 | University of Stirling, Institute of Education | www.ioe.stir.ac.uk | There are no clear indications that the institution has engaged in entrepreneurship education |
| 5 | University of Glasgow, ITE Services, Faculty of Education | www.gla.ac.uk/faculties/education | There are no clear indications that the institution has engaged in entrepreneurship education |
| 6 | University of West of Scotland, Paisley Campus | www.paisley.ac.uk | There are no clear indications that the institution has engaged in entrepreneurship education |
| 7 | The Open University in Scotland, Faculty of Education and Language Studies | www.open.ac.uk/scotland | There are no clear indications that the institution has engaged in entrepreneurship education |
| 8 | University of Edinburgh, Moray House School of Education | www.education.ed.ac.uk | There are no clear indications that the institution has engaged in entrepreneurship education |
| | Total no. institutions | 8 | Providing entrepreneurship education: 2 institutions |

Sources: EACEA, Unesco, Cordis Europa, Enic-Naric and national Ministries of Education websites²³⁹

Notes: *: Colleges that train teacher of religion courses have not been included;

** : Only for engineering and economics teachers;

***: Only for music teachers;

****: Only for arts teachers

²³⁹ http://www.bmwf.gv.at/fileadmin/user_upload/wissenschaft/hochschulwesen/postsek_bildungseinrichtungen.pdf
http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php
<http://www.nefmi.gov.hu/felsooktatas/felsooktatasi-intezmenyek>
<http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&topicID=66&parentID=65&countryCode=AT>
http://portal.unesco.org/education/en/ev.php-URL_ID=57477&URL_DO=DO_TOPIC&URL_SECTION=201.html
<http://www.enic-naric.net/index.aspx?c=Croatia#Lists%20of%20Recognized%20Higher%20Education%20Institutions0>

Annex 5 List of relevant projects

| Project name | Institution implementing the project | Description of the project (if available) | Weblink to project | Additional information |
|---|--------------------------------------|--|---|-------------------------------|
| Austria | | | | |
| AQUEDUCT: Acquiring key competences through heritage education ²⁴⁰ | Pädagogische Hochschule Steiermark | General aim: To improve the acquisition of the Lifelong Learning transversal key competences in schools through heritage education. In particular, to build teacher capacity for competence oriented education in a heritage context. Target group: Teacher trainers, initial teacher training students and teachers in schools reaching 6 – 14 age groups (primary and lower secondary education). | http://www.accr-europe.org/%28S%28dwa01iik3cjky3i4ygynpx45%29%29/projects.aspx?projekt_id=27 | |
| EESI- Entrepreneurship education for new impulses in school | Schumpeter Handelsakademie | Aim: Implementation of entrepreneurship education as a cross-curricular subject, nation-wide networking among multipliers, development of a coordination centre Target group: Teachers in-service and multipliers | http://www.eesi-impulszentrum.at/index2.php?e_e.si (In German) | See Country Report on Page 49 |
| Entrepreneur's Skills Certificate® | Austrian Federal Economic Chamber | Aim: The Entrepreneur's Skills Certificate® is offered as a voluntary supplementary qualification. It was recognised by the European Commission in 2006 and Eurochambres in 2011 as a best-practice example of entrepreneurship education. Target group: Students in secondary school and their teachers | http://www.unternehmerfuehrer-schein.at/Content.Node/index.en.html | See Country Report on Page 49 |

²⁴⁰ This is a Comenius project, Ref: 502572-LLP-1-2009-1-BE-COMENIUS-CMP. Pädagogische Hochschule Steiermark is a partner in this project. Source: http://eacea.ec.europa.eu/llp/results_projects/documents/compendium_2009_comeniue_en.pdf

| Belgium-FI | | | | |
|---|-----------------------------|---|--|--|
| AQUEDUCT: Acquiring key competences through heritage education ²⁴¹ | see under Austria | see under Austria | see under Austria | |
| Ondernemend Onderwijs | | Aim: The project wants to stimulate entrepreneurship with several actions and events. Target groups: Teachers, students, future entrepreneurs | http://www.ondernemendonderwijs.be/pagina1.html | |
| Proleron | | Aim: The project aims at the professionalization of teachers in the field of entrepreneurship education in non-classical subjects Target group: Teachers primary and secondary (in-service) | http://www.ond.vlaanderen.be/dbo/projecten/projecten_proleron.htm (in Dutch) | |
| Croatia | | | | |
| E4E project | Croatian Chamber of Economy | Aim: E4E pursues the strategic goal of promoting entrepreneurial learning as a key competence in all levels and forms of education. E4E organised a series of events aimed at promoting entrepreneurial learning in education, e.g. the "Children's Entrepreneurship Week", during which pre-school, school children and university students participated in activities that heightened awareness of the importance of entrepreneurship as a key competence. In Universities, entrepreneurship education programmes are offered through courses, modules and are focused on the undergraduate, graduate and postgraduate level. | http://www.e4e.com.hr/?content=projekti&lng=en | The project is supported by the Croatian Ministry of Economy, Labour and Entrepreneurship, the Ministry of Science, Education and Sports, the Ministry of Agriculture, Fisheries and Rural Development, the Ministry of Regional Development, Forestry and Water and the Ministry of Tourism. See Country Report on page 66 |

²⁴¹ See full description of the project under Austria

| Finland | | | |
|--|---|--|---|
| Yrittäjyyskasvatuksen polku (NY entrepreneurship education) | JA-YE Finland | Aim: create new educational concepts and practices in entrepreneurial education to support implementation Target group: Primary and secondary school teaching staff and head teachers | http://www.ewb.ja-ye.org/ |
| Kasvu yrittäjyyteen (The growth of entrepreneurship) | Valkeakoski Regional Development Ltd. | Aim: Develop new entrepreneurship education pathways in secondary and polytechnic schools in terms of methodologies, teacher training, curricula and learning environments. Target group: Primary, secondary, VET teachers and headmasters | |
| HOPE | West Pirkanmaa Educational, Ikaalisten Arts and Crafts School | Aim: Prepare teachers to meet the qualification criteria for a more entrepreneurial way of teaching and change school structures and ethos in order to favour entrepreneurship education. Target group: VET teachers and headmasters | |
| YES-Center | | Aim: to promote entrepreneurial way of thinking and behaving. The aim of YES-Centres is to support entrepreneurship by providing tools and services to teachers close to centre working together with entrepreneurs, schools and development organisations. | |
| Lyyti – Löydä oma yrittäjyytesi (Find Your Own Entrepreneurship) | University of Joensuu, Continuing Education Centre | Aim: give resources and means for planning and implementing enterprise education in schools, educational institutes and municipalities Target group: teachers from all school levels and the students of University of Joensuu studying to become teachers. | |
| Together in working life, together in education | Humak University / Jyväskylä University | Aim: to provide entrepreneurship education and courses Target group: student teachers and students of civic activities and youth work. | http://www.intent2010.com/sites/intent/Conference-Book-2010.pdf |
| YVI | University of Turku | Aim: Improving the understanding of entrepreneurship education, develop material and methodologies | http://www.yvi.fi (in Finnish language) See Case Study on Page 81 |

| The Netherlands | | | | |
|--|---|--|---|--|
| SenterNovem 'Action Programme for Entrepreneurship and Education' (Actieprogramma Onderwijs en ondernemen) | Netherlands Institute for Curriculum Development (SLO) | Aim: Two- to four- day-courses for teachers in-service have been developed, intending to raise awareness about Entrepreneurship Education and seize opportunities which can be implemented in teaching methods. The participants are invited to look beyond their organisation and use external factors as an added-value for their courses ("Close the textbooks and involve partners from outside schools"). Over the past year, 400 teachers and 50 principals were trained. Target group: Teaching staff and principals in primary and secondary education. | http://www.onderwijsonderneemt.nl/english/action_programme_education_and_entrepreneurship | See Country Report on page 89 |
| Norway | | | | |
| YA-YE Norway | Ungt Entreprenørskap, UE Norway | Aim: JA-YE Norway's wants to develop children's and youth's creativity, foster understanding of the importance of value creation and innovation in business, promote team work capability and responsibility, provide understanding and knowledge of ethics and rules of business, strengthen cooperation between local businesses and schools and inspire future value creation in a social, cultural and economical context. Target group: Students (and their teachers) | http://www.ewb.ja-ye.org/ http://english.ue.no/pls/apex32/f?p=16000:1002:1311748068369775:::1002:P1002_HID_ID:6405 | |
| Teamwork, Training and Technology for development of Key Competencies | Universitetet i Stavanger (acting as a partner ²⁴²) | Aim: to equip teachers with tools that will help them to organise educational process oriented at learning as problem-solving or research-in-action activities and to build key competencies. | | Comenius funded ²⁴³ |
| Entrepreneurship in kindergarten and primary schools | Each region of municipality / County of Telemark | Aim: the project entails a 3 step programme for teacher training in order to foster a common understanding of entrepreneurship as a key competence and to enhance teacher networks and benchmarking Target group: kindergarten and primary teachers | http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/policy-framework/2006-conference/index_en.htm | Initiative promoted by Confederation of Norwegian Enterprise (NHO) |

²⁴² The coordinator of this project is the Centre for Creativity Training (BG) www.cct.bg

²⁴³ Reference of the project: 504605-LLP-1-2009-1-BG-COMENIUS-CMP

| Portugal | | | | |
|--|--|--|---|--|
| Promoting Entrepreneurial Culture on Adult Education (PECAE) | Sociedade Portuguesa de Inovação (SPI) ²⁴⁴ | Aim: to create a more pro-active and entrepreneurial culture in the society by developing a course for adult trainers, teachers and educators to support them in including entrepreneurial component in adult curricula Target group: educators, trainers or teachers providing training courses or classes to adult learners | http://www2.spi.pt/pecae/partners.htm | Grundtvig funded |
| K'cidade | Aga Khan Foundation | Aim: to tackle the roots of social exclusion by enhancing entrepreneurial skills. The project provides entrepreneurial skills by training teachers in more active models of education (EDUCARE) Target group: teachers, children and families | http://www.kcidade.com/ and http://wikipreneurship.eu/index.php5?title=K%27cidade&PHPSESSID=2bab71fa2d0abd680555b03e9d37302d | The Portuguese Ministry of Labour and Social Solidarity invited K' Cidade to expand its work to other areas of the country |
| Pupils for INnOvation as a Key to Intercultural and social inclusion (P.I.N.O.K.I.O) | University of Madeira (acting as partner) ²⁴⁵ | Aim: to train teachers towards a sense of initiative and entrepreneurship, social and civic competences and cultural awareness and expression Target group: pre-primary and primary school teachers | http://www.pinocchio.it/fondazioneecollodi/ | Comenius funded ²⁴⁶ See Case Study on Page 113 |
| Centre for Entrepreneurship Education in Portugal (CEEP) | Joint initiative of Universidade Católica Portuguesa, Porto, Universidade de Lisboa and Universidade Algarve as well as several polytechnic universities. Closely associated with Portuguese and multinational firms and civil society organisations | CEEP focuses on three main activities: 1) Policy development 2) Research and 3) Capacity building of entrepreneurship educators and trainers. CEEP Advocates and participates in the creation and implementation of a transversal national strategy on entrepreneurial education and training. CEEP works with various ministries in the framework lifelong learning in entrepreneurial education, training and VET. | http://www.youtube.com/watch?v=6qOsm6lmJgQ | See Country Report on Page 110 |

²⁴⁴ SPI is the coordinator of the project. The project also includes an Austrian partner, die Berater® Unternehmensberatungs GmbH and a Swedish partner, the Swedish TelePedagogic Knowledge Centre.

²⁴⁵ The coordinator of the project is an Italian institution, <http://www.pinocchio.it/fondazioneecollodi/>

²⁴⁶ Reference of the project: 503349-LLP-1-2009-1-IT-COMENIUS-CMP

| Sweden | | | | |
|--|---|--|---|--------------------------------|
| Embedding a Culture of Enterprise and Creativity in the Curriculum | Söderhamn community | Aim: to promote creativity and entrepreneurial spirit within the school curriculum by giving teachers the opportunity to test different methods in a safe environment Target group: teachers in school education, the secondary target group is school managers at the same level | www.soderhamn.se | Comenius funded ²⁴⁷ |
| UK-Scotland | | | | |
| Pathfinders - Enterprise | North Ayrshire Council | Aim: to collate appropriate resources on specific topics to minimize their time looking for resources Target group: Primary teachers | http://www.ers.north-ayrshire.gov.uk/ers/ersteachers/ers_teachers_pathfinders_enterprise.cfm | |
| 'Awareness-raising' sessions | Faculty of Education / University of Strathclyde, Glasgow | Aim: to sensitise student teachers to the philosophy behind Enterprise in Education, and to encourage them to consider adopting an enterprising approach to teaching and learning. Target group: all student teachers enrolled in initial teacher education | http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/policy-framework/2006-conference/index_en.htm | See Case Study on Page 130 |

²⁴⁷ Reference of the project: 502140-LLP-1-2009-1-SE-COMENIUS-CMP