



Entrepreneurship Education:

# A Guide for Educators





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Brussels

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# Entrepreneurship Education: A Guide for Educators.

This Guide was prepared in 2013 for the European Commission, DG Enterprise and Industry.

## **Abstract:**

In 2012, DG Enterprise and Industry and DG Education and Culture initiated two transnational events targeting teachers' preparation for entrepreneurship education. The events took place in May 2012 (Dublin, Ireland) and in September 2012 (Brdo, Slovenia). The aim of the events was to bring together actors involved in teacher education and training in entrepreneurship to present good practice, exchange ideas and learn from each other.

About 170 delegates from more than 30 countries — European Member States as well as accession countries and partner countries — took part in the two events. Experts presented frameworks and guidelines; and practitioners from schools, teacher training institutions, non-governmental organisations (NGOs) and training providers showcased their methods, programmes and projects. Innovative ideas were explored and discussed in workshops and group working sessions. Altogether, a wide variety of areas of action regarding the implementation of entrepreneurship education in teacher education was covered.

This guide aims to showcase a selection of examples of inspiring practice featured through the two events to a wider audience. It highlights the enablers and the success factors

of the examples, and provides contact details for more information.

Building on this, it provides a selection of practical recommendations developed as a result of the events, hoping to inspire practitioners to take action and continue with their own activities to enable teachers for entrepreneurship education.

## **Performing organisation:**

This Guide was prepared in 2013 for the European Commission — DG Enterprise and Industry by ICF GHK : GHK Consulting Ltd.

# Foreword

Support for entrepreneurship has never been more important than it is now. Reinforcing entrepreneurial education in schools, vocational education institutions and universities will have a positive impact on the entrepreneurial dynamism of our economies. Indeed, besides contributing to the creation of social enterprise and business start-ups, entrepreneurship education will make young people more employable and more ‘intrapreneurial’ in their work within existing organisations, across the social, public and private sectors. Therefore investing in entrepreneurship education is one of the highest return investments that Europe can make: research shows that pupils and students who have participated are three to six times more likely to start a business at some point later in life than those who do not receive entrepreneurship education.

Through the Entrepreneurship 2020 Action Plan and the Rethinking Education Communication, the European Commission has emphasised the need to embed entrepreneurial learning in all sectors of education including non-formal learning. Both documents call on Member States to provide all young people with practical entrepreneurial experience before leaving compulsory education, highlighting the importance of learning by doing within education and training. Education is a Member State competence, but action at the European level can support Member States as they adapt and improve the ways they recruit, educate and develop their teaching workforce. This can

be through both: financing actions that have systemic impact, especially through the proposed ‘Erasmus +’ programme, and by supporting peer learning from each other’s policy and practice. The newly created European Institute of Innovation and Technology is also helping to change mindsets towards a more entrepreneurial culture, and its KICs — Knowledge and Innovation Communities — now run their own masters and PhD classes with a strong entrepreneurial dimension.

Teachers have a central role, as they have a strong impact on the attainment of learners. Reflective teachers keep their practice under constant review and adjust it in the light of desired learning outcomes and of the individual needs of students. As a key competence, entrepreneurship does not necessarily involve a specific school subject. Rather, it requires a way of teaching in which experiential learning and project work have a main role. Teachers do not provide students with the answers, but help them to research and identify the right questions and find the best answers. To inspire their pupils and students, and to help them develop an enterprising attitude, teachers need a wide range of competences related to creativity and entrepreneurship; they require a school environment where creativity and risk-taking are encouraged, and mistakes are valued as a learning opportunity. Developing the competences of school leaders and teaching staff — including aspiring new teachers

and those who have been in the profession for a long time — should be an absolute priority for Member States.

Whilst the Commission is increasing its support to strengthen the teaching professions, it is also raising the level of its challenge — to Member States and to the professions themselves — to engage in reform that can deliver higher quality learning through more effective teaching and teacher education; because no reform will succeed unless it starts and ends with teachers and with those who teach them.

This guide is the result of bringing together teachers and experts in two practical workshops ('laboratories') at European level, to exchange existing practice and to discuss best ways to educate and support teachers in introducing entrepreneurial projects and methods into the classroom. The ideas and examples collected during those workshops have been collated into this guide to share these inspiring practices more widely. We hope that you will enjoy and make good use of it.



*Antonio Tajani*



*Mariella*



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# Introduction

To support productivity and growth in Europe, it is essential to invest in education and training. Europe needs creative and innovative entrepreneurs; and it needs a flexible and resilient work force well equipped with the necessary skills and key competences.

The European Commission recognises entrepreneurship education as a tool that can support young people to be more entrepreneurial. This is about how to develop a general set of competences applicable in all walks of life, not simply about learning how to run a business. It includes all forms of learning, education and training which contribute to entrepreneurial spirit, competence and behaviour — with or without a commercial objective.

In November 2012, the European Commission published the communication 'Rethinking education: investing in skills for better socio-economic outcomes'. This policy initiative emphasises that, in order to build 'skills for the 21st century', efforts are needed to develop transversal skills such as entrepreneurship and highlights 'the ability to think critically, take initiative, problem solve and work collaboratively'. These 'entrepreneurial skills' should be given particular attention, since they not only help to achieve concrete entrepreneurial activity, but also enhance the employability of young people.

'Member States should foster entrepreneurial skills through new and creative ways of teaching and learning from primary school onwards, alongside a focus from secondary to higher education on the opportunity of business creation as a career destination. Real world experience, through problem-based learning and enterprise links, should be embedded across all disciplines and tailored to all levels of education. **All young people should benefit from at least one practical entrepreneurial experience before leaving compulsory education**'.(\*)

For the education and training sector, this means that efforts need to be taken to make sure that today's European students develop entrepreneurial skills and get the chance to have a 'practical entrepreneurial experience'. This is relevant to all levels of education — from nursery right through to higher education.

Needless to say, teachers and educators have a critical role to play in this. They are facilitators of learning and multipliers of ideas. They shape learning processes and can help students to achieve entrepreneurial learning outcomes — concrete knowledge, skills and attitudes.

Teachers and educators also need the opportunity to acquire the knowledge, skills and attitudes required to include entrepreneurship education and enable entrepreneurial learning. Every student, teacher and existing teacher should benefit from at least one experience of training on the key topics and methods related to entrepreneurial learning and entrepreneurship education during their career.

The European Commission has published a number of policy documents on how to implement entrepreneurship education (e.g. 'The Oslo Agenda on Entrepreneurship Education in Europe') and has initiated debates among policy-makers in a series of 'High Level Reflection Panels'. **In all these documents and discussions, activities regarding the initial education and continuing professional development (CPD) of teachers across Europe played a prominent role**(\*\*).

In 2012, DG Enterprise and Industry and DG Education and Culture initiated two transnational events targeting teachers' preparation for entrepreneurship education. The events took place in May 2012 (Dublin, Ireland) and in September 2012 (Brdo, Slovenia). The aim of the events was to bring together actors involved in teacher education and training in entrepreneurship to present good practice, exchange ideas and learn from each other.

About 170 delegates from more than 30 countries — European Member States as well as accession countries and partner countries — took part in the two events. Experts presented frameworks and guidelines; and practitioners from schools, teacher training institutions, NGOs and training providers showcased their methods, programmes and projects. Innovative ideas were explored and discussed in workshops and group working sessions. Altogether, a wide variety of areas of action regarding the implementation of entrepreneurship education in teacher education was covered.

**This guide aims to showcase a selection of examples of inspiring practice featured through the two events to a wider audience. It highlights the enablers and the success factors of the examples, and provides contact details for more information.**

**Building on this, it provides a selection of practical recommendations developed as a result of the events, hoping to inspire practitioners to take action and continue with their own activities to enable teachers for entrepreneurship education.**

(\*) European Commission, 2012, 'Rethinking education: investing in skills for better socio-economic outcomes'

(\*\*) [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/education-training-entrepreneurship/index_en.htm)

# Keywords

	Initial Teacher Education	Continuing Professional Development		Initial Teacher Education	Continuing Professional Development
Art & design	19		Methods for teaching innovation		81
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Awareness raising		59, 71, 89, 93	Networking	49	
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# What makes an entrepreneurial teacher?

## The entrepreneurial teacher

Entrepreneurial teachers have a passion for teaching. They are inspirational, open-minded and confident, flexible and responsible — but also, from time to time, rule-breakers. They listen well, can harness and sell ideas and can work student- and action-oriented. They are team players and have a good network.

They seek to close the gap between education and economy and include external experts in their teaching; focusing on real-life experiences. They always refer to the economic aspect of a topic; and business-related subjects play an important role in their classes — across the disciplines.

They follow a flexible and adaptable study plan and prefer interdisciplinary, project-based learning; using training material rather than textbooks. They put emphasis on group processes and interactions; and understand the class room sometimes as a ‘clash room’, giving room for diversity — a diversity of opinions, answers and solutions and the reflection about the learning process.

An entrepreneurial teacher is more of a coach than someone who lectures. They support the individual learning processes of students and the development of personal competences.

The current thinking on entrepreneurial teaching is based on a number of recurring themes.

- Entrepreneurship education is more than preparation on how to run a business. It is about how to develop the entrepreneurial attitudes, skills and knowledge which, in short, should enable a student to ‘turn ideas into action’.
- Teachers cannot teach how to be entrepreneurial without themselves being entrepreneurial.
- Entrepreneurial competences require active methods of engaging students to release their creativity and innovation.
- Entrepreneurial competency and skills can be acquired or built only through hands-on, real life learning experiences.
- Entrepreneurial skills can be taught across all subjects as well as a separate subject.
- Entrepreneurship education should focus on ‘intrapreneurs’ as well as entrepreneurs, in light of the fact that most students will use entrepreneurial skills within companies or public institutions.
- To give entrepreneurship education real traction, there is a need to develop learning out-

comes related to entrepreneurship, and related assessment methods and quality assurance procedures for all levels of education. These should be designed to help teachers progress in the acquisition of entrepreneurial knowledge, skills and attitudes.

- The entrepreneurship education agenda should be promoted beyond teacher education institutions to businesses and the wider community.
- Teachers and schools will not be able to realise their ambitions without cooperation and partnerships with colleagues, businesses and other stakeholders.



# What will support entrepreneurial education for teachers?

To realise all of the points above, several necessary conditions need to be in place.

## **Good initial teacher education**

Student teachers should get the chance to experience entrepreneurial learning in their initial training. By studying in an institution that enforces entrepreneurship education in a broad sense, student teachers develop a range of skills and methods that enables them to be innovative and entrepreneurial themselves. Teachers entering their profession with an awareness of entrepreneurial principles are able to ignite the 'entrepreneurial spark' and inspire their students right from the beginning of their professional career.

## **Teacher education institutions with an entrepreneurial strategy and a vision**

Teacher education institutions benefit from a mission and a clear vision on how entrepreneurial strategies can serve their institutional goals. Entrepreneurship education can be embedded as a horizontal approach throughout the whole study programme, by viewing it as a key competence important to any teachers' qualifications rather than as an isolated subject.

## **Entrepreneurial teacher education programmes built around new pedagogies**

To act entrepreneurially, active learning is necessary. Contemporary pedagogies (e.g. project-based, active learning or independent learning) should be applied. These can be piloted in specific programmes; emerging good practices should be shared amongst teacher educators to eventually become embedded in day-to-day pedagogy. Non-traditional learning environments (real-life situations, out of classroom) should be available for all students.

## **Quality continuing professional development**

High quality programmes for the continuing professional development of existing teachers are needed to support entrepreneurial teachers, and to make sure that those who did not have the chance to experience entrepreneurship education during their initial training can catch up with the latest developments.

## **A school to work in that values entrepreneurial spirit and good support from effective school leaders**

An entrepreneurial school has a vision for its future needs and a clear view of how entrepreneurship education fits into the broader curriculum and development plan. Developing entrepreneurship in initial teacher education (ITE) will struggle to have significant impact if teachers subsequently progress into schools which are not embracing the concept of entrepreneurship education. Entrepreneurial teachers benefit from good support from effective school leaders.

## **Partners in the community**

Support systems have a vital role to play in making progress. Schools and teacher education institutions should establish links and cooperation structures with businesses and community organisations to support their entrepreneurship curriculum.

## **Entrepreneurial teaching networks**

To assure continuous quality, teachers engaged in entrepreneurial teaching and learning should develop a network, meeting regularly and exchanging experiences, know-how and material.

All of these components are interrelated. To achieve sustainability and longevity, action is required in all areas. Leadership, vision and incentives are key at all levels.

Whilst these are common principles, they need to be owned by each institution and adapted to their context. Governments, institutions, schools and stakeholders across Europe are in different stages of development regarding the implementation of entrepreneurial teaching and learning. Some countries launched a comprehensive strategy on entrepreneurship education for all levels of education years ago, whilst others are only in a baseline position, where entrepreneurial principles are largely absent in teaching and learning; and support to action on an institutional level is scarce. This means that in all of the areas above, tailor-made solutions have to be developed for every individual setting.

The scope of solutions may also be different. Whilst in one country, solutions on national level may be possible, in others, small-scale action in a pilot school might already constitute an important step forward.

The collection of inspiring examples in this guide shows that no project or action is too small. Many prominent examples have small and were scaled up after they proved to be a success.

*Hence, this guide should be understood as an invitation to take a risk, be creative and innovative, develop ideas and take action — in other words:*

***be entrepreneurial!***





# Examples of practice in Initial Teacher Education

# Initial teacher education — key messages from examples

To reach the goal of implementing entrepreneurship education sustainably in initial teacher education, Europe needs



entrepreneurial teacher education institutions with a vision and a strategy.

- An entrepreneurial teacher education institution has a clear educational concept, seeking to **equip student teachers with the ability to teach for the world of tomorrow**. This concept is embedded in the entire curriculum.
- Entrepreneurship is embedded in the **college's culture and mission**.
- An entrepreneurial teacher education institution has a vision for its future needs and a **clear view of how entrepreneurship education fits into the broader curriculum and development plan**.
- An entrepreneurial teacher education institution has a **strong network**.
- An entrepreneurial teacher education institution promotes a strong **practical component to learning** supported by a solid theoretical basis.
- An entrepreneurial institution seeks to **find the right people**, recruit them and allow them **the space to develop their ideas**.
- Entrepreneurship education is integrated as a **horizontal approach and a cross curricular subject** throughout the whole study programme. Rather than being viewed as an isolated subject, it is perceived as a competence and talent crucial to any teacher's qualifications.
- Participation in entrepreneurship education courses and actions is a **curriculum requirement** rather than an elective activity.
- It is a constant concern to adapt the courses and subjects taught to the **needs of the labour market**.
- Entrepreneurial institutions **make room for experimentation**. New teaching methods and innovative projects are given space and support to succeed. Educators are allowed an experimental attitude acknowledging that sometimes things will fail.
- **Top-down support** from management is essential.

## Entrepreneurial teacher educators

- Teacher educators also need to develop an entrepreneurial approach to teaching and learning. They need to create an **environment that enables innovation in teacher education** and teaching practice.
- Teacher educators on their way to become entrepreneurial sometimes need to overcome negative notions of ‘entrepreneurship’. Endorsing the concept of **social entrepreneurship** — ‘**profit-making**’ rather than ‘**profit taking**’ — connects well to common ideals of teaching and can help to overcome bias.
- Teacher educators benefit from **concrete and tangibly defined learning outcomes** for entrepreneurial teaching.
- Teacher educators benefit from developed and quality assured **assessment methods** for entrepreneurship education pedagogy.
- Entrepreneurial teacher educators **have networks to share practice** — both good and bad. They also use their networks to inform government and to **lobby from the bottom up**.
- Entrepreneurial teacher educators support the **development of practical and concrete materials** to help implement entrepreneurship education.
- Entrepreneurial teacher educators **collect student feedback systematically** since they know that learners’ enthusiasm is an important driver for the implementation of entrepreneurship education.

## Entrepreneurial teacher training programmes and methods for student teachers

- Entrepreneurial teacher training programmes motivate student teachers to **develop their own entrepreneurial knowledge, skills and attitudes**.
- Entrepreneurial teacher training programmes help student teachers to develop their own **mission in teaching and their own ‘portfolio’**: *As an educator, what do I want to achieve? What methods, experiences and resources do I have on offer?*

- **Active learning, practical experiences and learning by doing** are supported. Student teachers get various opportunities to define their own objectives, plan learning methods and act.
- Student teachers get the opportunity to **discuss, reflect and evaluate their learning process** as to methods and knowledge: *How do we learn what we learn?*
- The relevance of entrepreneurship education is **underpinned by a theoretical model** which makes it easier to understand and implement.
- Entrepreneurial teacher training programmes and methods support an understanding of **the role of the teacher as a supporter and a facilitator** who does not simply provide the answers to students but lets them find out for themselves.
- Entrepreneurial methods allow **time for reflection**, e.g. by writing reflective diaries and for reflective discussions during and after the learning processes. Reflection should focus on the learning process as well as on solutions found.

## Partnerships between the educational sector, the business community and the creative industry

- Entrepreneurship education in teacher education benefits from **links between educational institutions and the business community**. Business representatives can support entrepreneurial teaching and learning in many ways: as experts, as supporters, as mentors or as critical friends.
- Educational institutions can learn from creative arts about how to facilitate and assess a creative process — **how to have ideas and turn them into action**.
- Partnerships with schools are beneficial to ‘road-test’ and quality assure innovative ideas, projects and material. Moreover, this approach helps to spread and ‘sell’ the idea of entrepreneurship education to multipliers.

# Entrepreneurial approaches in teacher education

The [University of Jyväskylä](#) has implemented entrepreneurship education in several modules of teacher education on a compulsory basis:

The basics of entrepreneurship and business know how.

- ▶ Introductory course on entrepreneurship education ‘Participatory citizenship and entrepreneurship’

Student teachers cover the concepts and basics of entrepreneurship education, entrepreneurship literature, and the planning and execution of a project in a school or local NGO. Two examples of projects in schools where student teachers participated are listed here.

- ▶ *The Children’s Parliament*: An effective way to implement a cross-curriculum in school and develop children’s entrepreneurial attitude to life. It works as a channel for pupils to influence and participate.
- ▶ *Against the Machine*: supporting active citizenship. The aim of the project was to help high school students to get their voice heard about a current political issue. In this case they developed a performance. The role of student teachers was to take care of arrangements and permissions, as well as to give support during the process.

**Type of activity:** Entrepreneurial teacher education institutions

**Country of implementation:** Finland

**Institution implementing the activity:** University of Jyväskylä

**Website or link to project or institution:** <http://www.jyu.fi>

**Main contact:** Sonja Virtanen

**Main contact email:** [sonja.virtanen@jyu.fi](mailto:sonja.virtanen@jyu.fi)

**Telephone:** +358 408053378

**Telephone of the institution:** +358 142601211

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Primary school teachers (grades 1–6 in Finland)



- ▶ Entrepreneurship in technology education and physical education.
  - ▶ Entrepreneurship in technology education: an example is the Bird-house band. It focused on the ability to turn ideas into action, collaborative learning, creativity and problem solving.
  - ▶ Entrepreneurship education in physical education: an example here includes a sport tournament between faculties and included the cooperation of local businesses.
- ▶ Advanced studies course on 'Learning organisations and entrepreneurship education'. Students' focus changes from the pedagogical community to enterprises, where students observe enterprises as learning organisations.
  - ▶ The group spends a predetermined time at an enterprise observing, interviewing staff and, to the extent possible, participating in the activities of the business in order to collect useful teaching material.
  - ▶ The students assignment includes analysis and recommendations for the development of a learning system in the respective enterprise.
- ▶ In the academic year 2013–2014 the International Masters Programme in Education started and one compulsory course is 'Educational Innovations and Entrepreneurship'.

### Preconditions for success

- ▶ Entrepreneurship education should be embedded in the mission and the curriculum of the institution.

### Impact of activity

- ▶ There has been no formal research about the impact of the project but student feedback has been very positive and they have mentioned that they are more aware of the importance of entrepreneurship education.

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#### Useful links or resources:

A presentation on the college by Sonja Virtanen is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/sonja\\_virtanen\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/sonja_virtanen_en.pdf)

On the university website, there is general information about the activities and some PowerPoint presentations of the projects that have been created during last 2 years (only in Finnish at this time): <https://www.jyu.fi/edu/laitokset/okl/opiskelu/yrittajyyys>

## ‘Moving statues’ — art in teacher education

The [National College of Art and Design \(NCAD\)](#), Dublin offers a range of teacher education programmes. At undergraduate level, students can take a Joint Honours Degree in either Fine Art and Education or Design and Education. At postgraduate level, the Faculty of Education offers a range of Masters, PhDs, Professional and Graduate Diplomas in art education.

Art and design provides an excellent model for entrepreneurial learning. The way an artist and designer approach a problem and move towards solutions, are essential aptitudes for all learners to gain. Art colleges embed critical thinking and engagement in everything they do, which are critical skills for entrepreneurial success. There are many ways in which entrepreneurship education and learning can be enhanced by collaboration

with art and design. One particular example from NCAD is ‘collaborative practice in initial teacher education’.

All teacher education students are exposed to collaborative practice. One of the programmes involved the creation of ‘moving statues’ which allowed students to connect with Irish history, the nature and power of performance and the value of the spoken word. A show was put on at the National Museum of Ireland involving gigantic puppets, inspired by the statues on Dublin’s O’Connell Street, and their stories. It is explicitly about collaboration — internally between students and teachers, and externally with schools, cultural institutions and community groups.

**Type of activity:** Entrepreneurial teacher education institutions

**Country of implementation:** Ireland

**Institution implementing the activity:** National College of Art and Design (NCAD), Dublin

**Website or link to project or institution:** <http://www.ncad.ie>

**Main contact:** Gary Granville

**Main contact email:** [granvilleg@ncad.ie](mailto:granvilleg@ncad.ie)

**Application/target audience of activity:** initial teacher training and students in Dublin schools

**Level of education targeted:** All levels



## Preconditions for success

An environment that enables innovation in teacher education and teaching practice.

Ireland has recently announced a review of teacher education, creating an opportunity for NCAD to re-conceptualise teacher education. However, the concept of profit-making (rather than profit taking) fits more closely with the notions of social entrepreneurship and contribution used by NCAD.

There is also wider curriculum reform by the National Council for Curriculum and Assessment, currently at an advanced stage, which emphasises the need for 'key skills' to be embedded in the education of the young, as well as a dedicated short-course on enterprise.

Within NCAD they are also undergoing substantive change, and have recently set up a strategic alliance with University College Dublin. Degrees are changing to a three plus two system; to allow more engagement in a real world setting at undergraduate and postgraduate levels. It's hoped that post-graduate research will feed back more strongly and directly to undergraduates.

## Impact of activity

There are a range of benefits gained from collaborative practice in teacher education.

- ▶ Developing team work, collaboration and negotiation skills.
- ▶ Building trust in each other, cemented by the basis for assessment which is one grade for the team as a whole — everyone must pass or fail together.

These fit in with the wider 'key skills' recently emphasised by National Council for Curriculum and Assessment: information processing, communication, being personally effective, working together and critical thinking.

## Plans to progress this practice

NCAD Education Faculty plans to develop the community-related enterprise pillar of its work through the introduction of a new MA in Socially Engaged Art Practice, which will incorporate a qualification for teaching in the further education sector.

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ENTREPRENEURIAL INSTITUTION

ART &amp; DESIGN

COLLABORATION

IRELAND

Useful links or resources:

Moving Statues photostream: <http://www.flickr.com/photos/ncadeducation/sets/72157627803126142/>

# The art of teaching with an attitude

**Group T — Leuven Education College** has around 1 000 students and 85 teaching staff. Its mission statement is 'Educating essence by experiencing existence'. Its aim is to develop the person as a whole. They focus on '3 Es'.

- ▶ *Educating*: developing students' abilities around Unesco's 4 pillars of education: Learning to be, Learning to know, Learning to do, and Learning to live together.
- ▶ *Engineering*: allowing teachers to create powerful learning environments, displaying inventiveness and creativity in doing so.
- ▶ *Enterprising*: getting things done through leadership, innovation and daring.

Overall, they aim to create entrepreneurial, creative and flexible teachers in the classroom, school and society. They use a variety of innovative

pedagogical methods to create an entrepreneurial mindset, including: competence and talent-based learning; professional practice; teamwork in projects; sense of vision and mission; students are responsible for their own learning processes; the professor acts as a coach; integral assessment; reflection and portfolio; Information and communication technology (ICT) and new media; flexible learning paths; no mental or geographical borders.

GROUP T — Leuven Education College has a number of different projects and initiatives designed to enhance entrepreneurial, creative teaching practices. Two of these are outlined below.

- ▶ The postgraduate programme in development studies (IEC) is organised around Unesco's educational pillars and is aimed at students who hold a BA

**Type of activity:** Entrepreneurial teacher education institutions

**Country of implementation:** Belgium

**Institution implementing the activity:** Group T — Leuven Education College

**Website or link to project or institution:** <https://my.groept.be>

**Contact:** Thu Dang Kim (Associate Dean Innovation)

**Email:** [thu.dang@groept.be](mailto:thu.dang@groept.be)

**Telephone of the contact person:** +32 16301172

**Telephone of the institution:** +32 16301030

**Additional actors or partners involved:** Group T — Leuven Education College is member of Unesco's Associated Schools Project Network

**Application/target audience of activity:** Students of Professional Bachelor in Education

**Level of education targeted:** Multiple education levels; namely early years' education, primary education, lower-secondary education, primary and secondary education, and postgraduate mentoring and development studies (IEC)



degree. It has an international student population, including participants from Cameroon, China, Egypt, Ethiopia, Ghana, Indonesia, Ireland, Netherlands, Nigeria, Pakistan, Spain, Turkey, United Kingdom. In the autumn term, students explore entrepreneurship education. The goal is to set-up educational projects in the five major United Nations Educational, Scientific and Cultural Organisation (Unesco) fields (education, natural sciences, social and human sciences, culture, communication and information). In the spring term they move on to exploring education more generally.

- ▶ The 'reflection and portfolio' course, adapted from the portfolio concept by GROUP T in 1995/6. This is a compulsory 3-year course which gets students to develop their own personal portfolio. In the first year, students learn to discover and, reflect on, their own talents. In the second year they do a personal strengths, weaknesses, opportunities, and threats (SWOT) analysis and in third year they focus on evidencing their personal competencies and talents. In the third and final year they undertake an integral assessment moment (I AM) where they have to prove to a panel that they are capable teachers by means of an application and an interview for leaving the programme.

### Preconditions for success

Group T — Leuven Education College highlights three main elements which were particularly critical to success.

- ▶ *Define a mission and a vision:* staff established a clear educational concept based on the 'three Es' and Unesco pillars and tried to embed

the mission into their curriculum. They use a horizontal approach throughout the whole study programme; entrepreneurship education is not viewed as an isolated subject, but more a competence and talent crucial to any teachers' qualifications.

- ▶ *Find the right people:* GROUP T — Leuven Education College works hard to recruit the right new teachers, and then trusts them to do their job well; they are professionals, with good ideas when allowed the space to develop them. They are creative, inventive, and with entrepreneurial skills.
- ▶ *Make room for experiment:* New teaching methods and provocative projects need space and support to succeed; teachers need to gain experimental attitudes, and for this there also needs to be a realisation that sometimes things will fail.

### Impact of activity

- ▶ GROUP T — Leuven Education College has had very positive feedback from the schools who employ their graduates. They've highlighted how innovative the students are (for example finding jobs in developing countries). The number of students taught has multiplied five-fold in 15 years and student teachers are now better equipped to prepare future students for change.

ITE

ENTREPRENEURIAL INSTITUTION

WHOLE SCHOOL APPROACH

EMBEDDED

BELGIUM

Useful links or resources:

A presentation on the college by Thu Dang is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/thu\\_dang\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/thu_dang_en.pdf)

# Assessing a qualitative learning outcome

St Mary's University College provides undergraduate courses in teacher education and the liberal arts, as well as a range of postgraduate programmes in the field of teacher education. St Mary's entrepreneurship education policy is explicitly informed by the College's mission and academic, professional and civic values. All students are afforded the opportunity to develop and challenge entrepreneurial ideas through an intensive and interactive programme of workshops, seminars and lectures.

The programme is being developed through two cycles: Cycle I (2007–12) worked on staff development, fostering entrepreneurial learning, and creating entrepreneurial teacher tutors. Cycle II (2012–17) is focussing on

curricular innovation and development, restructuring the Bachelors in Education degrees and developing the Masters in Education programme.

St Mary's promotes entrepreneurship education by preparing teachers to adapt curriculum and teaching to ensure young people are better prepared for the labour market. The College offers a Certificate of Entrepreneurial Learning, which runs alongside the College's Bachelors Education. The Certificate is completed over the first three years of the Bachelor's degree, with an accelerated programme offered to final-year students. It offers students both the opportunity to consolidate knowledge and understanding, but also the opportunity to develop a coherent and critical appreciation of their teaching practice in the context of Entrepreneurial Learning.

**Type of activity:** Entrepreneurial teacher education institutions

**Country of implementation:** United Kingdom — Northern Ireland

**Institution implementing the activity:** St Mary's University College Belfast

**Website or link to project or institution:** <http://www.smucb.ac.uk>

**Main contact:** Frank Hennessey

**Main contact email:** [f.hennessey@smucb.ac.uk](mailto:f.hennessey@smucb.ac.uk)

**Telephone:** +44 2890268282 / the institution: +44 2890327678

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Multiple levels



The 'Certificate of Entrepreneurial Learning' has four components:

- ▶ general education (school-based unit of work with evidence of reflection)
- ▶ entrepreneurial learning (economic literacy, work based profile, Erasmus or Study USA)
- ▶ social entrepreneurship (report & reflection or commitment to voluntary activities)
- ▶ optional activities (written essays or projects).

Students join several projects and reflect on their experience in terms of their own knowledge and understanding of Entrepreneurial Learning, that of their pupils or both. The activity is solidly linked to a theoretical and academic context and at the same time offers an opportunity to focus learning and assessment on a qualitative area of reflection.

### Preconditions for success

- ▶ Entrepreneurship is embedded in the college's culture and mission.
- ▶ Holistic and integrated approach towards entrepreneurship.

### Impact of activity

- ▶ The certificate and training will increase the employability of their students.
- ▶ Longer term benefits — this new cadre of teachers will teach their students entrepreneurship skills which will eventually bring economic and societal returns.

ITE

ENTREPRENEURIAL INSTITUTION

CERTIFICATION

EMBEDDED

UNITED KINGDOM

Useful links or resources:

Presentation on the college by Frank Hennessey is available here [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/frank\\_hennessey\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/frank_hennessey_en.pdf)

## Curriculum subject — ‘Personal and social education’

The [Polytechnic Institute of Guarda \(GPI\)](#) was founded in 1980 and the School of Education started its activities in 1986. The School offers a Basic Education Bachelor Course where Entrepreneurship Education is addressed as a specific subject of Personal and Social Education (45 theoretic/practical hours and 7.5 hours for tutorial: 3 European Credit Transfer and Accumulation System (ECTS) credits). With this subject GPI applies Project Based Learning (PBL) as a methodology for developing entrepreneurship education.

The aim is that students use PBL for addressing a social, cultural or economic issue by:

- ▶ learning to be author/agent of their own life

- ▶ developing the ability to change (yourself and the environment) to see opportunities and be an active citizen.

Students are asked to present a project involving challenging problems that requires reflection, research and the use of their problem solving competences and decision-making skills. Students are the centre of the process that starts by considering personal/social meaningful issues that require cooperative work in order to be effectively addressed. Teachers assume the role of facilitators of projects that are designed by students, in which they assume an author/agent role as citizens and education professionals.

**Type of activity:** Entrepreneurial teacher education institutions

**Country of implementation:** Portugal

**Institution implementing the activity:** Superior School of Education, Communication and Sport, Polytechnic Institute of Guarda (GPI)

**Website or link to project or institution:** <http://www.ipg.pt>

**Main contact:** Carlos Francisco De Sousa Reis

**Main contact email:** [creis@ipg.pt](mailto:creis@ipg.pt)

**Telephone:** +351 964057023 / 271220115

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Basic education



### Preconditions for success

- ▶ To move ITE/entrepreneurship education forward, a link should be made between entrepreneurship and the core ability to change yourself and the world.
- ▶ Entrepreneurship education has to be embedded in the mission of the institution. GPI promotes a strong practical component, supported by a solid theoretical basis and, a constant concern to adapt the courses and subjects taught to the needs of the labour market and the new realities of today's world.

### Impact of activity

- ▶ The impact of the activity is limited to those involved and to specific situations, but has an influence over developing students' autonomy and dynamism as citizens and professionals.

### Plans to progress the activity

- ▶ GPI is expecting to introduce entrepreneurship education in Initial Teacher Education as sounder subject with the incoming curricular reform already planned for the next school year.

ITE

ENTREPRENEURIAL INSTITUTION

PROJECT WORK

EMBEDDED

PORTUGAL

# Didactic workshop — cross curricular learning

**Xios University College** is situated in Flanders. It has 5 departments, 2 campus sites and about 3 000 students. Entrepreneurship is a cross curricular subject. 'Didactic workshop cross curricular work and team work' is within the programme for the Bachelor of Secondary Education degree. The approach to the 'cross curricular learning' path is:

- ▶ first: 'inciting to learn' — theoretical input to entrepreneurship education.
- ▶ second: a didactic workshop (groups of 6 students of different specialisations).
- ▶ third: cross curricular training.

The programme includes a project as below.

- ▶ In the second year there is the cross curricular workshop in which all students are brought together (economy, history, physical education, etc.). They are then divided into groups of 6 students of mixed specialisations, therefore emphasising interdisciplinary working. They then develop a project on Education for Sustainable Development (ESD — millennium goals). The outcome from the project is presented on mentor-day to an audience including participants from secondary schools.
- ▶ In the 3rd year the cross curricular training students implement the project they had developed in a secondary school — turning the abstract into practice.

**Type of activity:** Programmes to prepare student teachers for entrepreneurship education

**Country of implementation:** Belgium

**Institution implementing the activity:** Xios University College Belgium

**Website or link to project or institution:** <http://www.xios.be>

**Main contact:** Michel Janssens

**Main contact email:** [michel.janssens@xios.be](mailto:michel.janssens@xios.be)

**Telephone:** +32 497269666

**Telephone of the institution:** +32 11370781

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Secondary education



- ▶ The activity further promotes the preparation of teachers for entrepreneurship education by visiting organisations involved in sustainable development. By inviting people involved within ESD they create the knowledge triangle: school-work-college.

The activity can be considered 'good practice' because: It is interdisciplinary, creative and compulsory. It has a product which implements the learning cycle and enables interaction with organisations involved in ESD and secondary schools.

### Preconditions for success

- ▶ Skills of the teacher trainers: competences in ESD (millennium goals) of those who train new teachers.
- ▶ A clear vision and mission statement which all teachers must subscribe to and apply.

### Impact of activity

- ▶ *For teachers:* Teachers involved in the project develop expertise and systems thinking. Teachers not directly involved (but teachers in the department of teacher education): become aware that cross curricular learning (about employability skills) is important to the curriculum and they get motivated to become part of this 'community'.
- ▶ *For students:* they learn from each other; they become aware that they have to learn across the curriculum; they gain a good preparation for a later job (where they will have to practice system thinking); and they learn to work together.
- ▶ *Practitioners:* it enables to see some good practice in cross curricular learning.

ITE

PREPARE STUDENT TEACHERS

SUSTAINABLE DEVELOPMENT

CROSS CURRICULAR

BELGIUM

# Mentoring programme within university

Student teachers participate in a training course (2–3 weeks) during the academic year. They go to schools and cooperate with in-service teachers. This is part of their curriculum requirement.

- ▶ It consists of school-based learning, report of activities, support of in-service teachers to help improve/solve problems at the respective school, contact businesses in order to cooperate in a school project

The activity promotes the preparation of teachers for entrepreneurship education by:

- ▶ cooperating with school teachers and directors
- ▶ learning about the real life problems in schools and getting practical knowledge
- ▶ creating innovative portfolios.

**Type of activity:** Programmes to prepare student teachers for entrepreneurship education

**Country of implementation:** Greece

**Institution implementing the activity:** University of Ioannina, Department of Early Childhood Education

**Website or link to project or institution:** <http://www.uoi.gr/oldsite/main.html>

**Main contact:** Polyxeni (Jenny) PANGE

**Main contact email:** [pagge@cc.uoi.gr](mailto:pagge@cc.uoi.gr); [jennypagge@yahoo.gr](mailto:jennypagge@yahoo.gr)

**Telephone:** +30 6936131810

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Multiple levels



To move forward in this area there is a need to:

- ▶ evaluate the training outcomes of all teachers according to the impact they have in their community
- ▶ use the learning model of 'Nearest Neighbours' in a collaborative context where students choose their groups and they are allowed to change group when they find their group 'boring'
- ▶ give awards to best practice.

### Preconditions for success

- ▶ A good theoretical knowledge of the subject.
- ▶ Good cooperative skills.
- ▶ Good use of ICT.

### Impact of activity

- ▶ To identify the educational benefits, exploring the everyday school activities.
- ▶ Students get practical knowledge.
- ▶ Students collaborate with school teachers and directors (stakeholders).

ITE

PREPARE STUDENT TEACHERS

PROBLEM SOLVING

COLLABORATION

GREECE

Useful links or resources:

In Greek: [http://www.pee.gr/wp-content/uploads/praktika\\_synedrion\\_files/e27\\_11\\_03/sin\\_ath/th\\_en\\_viii/ntoliopoyloy.htm](http://www.pee.gr/wp-content/uploads/praktika_synedrion_files/e27_11_03/sin_ath/th_en_viii/ntoliopoyloy.htm)

In English: <http://ecr.sagepub.com/content/3/3/299.short?rss=1&ssource=mfc&patientinform-links=yes&legid=specr;3/3/299>

# Regional project for entrepreneurial learning with a specific focus on pre-service and in-service teacher training

In 2008, eight governments of the region agreed on the establishment of the [South East European Centre for Entrepreneurial Learning \(SEECEL\)](#), with the Republic of Croatia as the host country. The objective of SEECEL is to share benchmarks to promote more developed learning economies.

This specific project is a transnational model for teacher training with defined learning outcomes for students and teachers. It has received financial support from the European Union (EU) Commission and the Croatian Government.

The piloting process took place through a compulsory and an optional course in 32 ISCED two schools and 16 Higher Education Institutions (HEIs) in the eight participating countries.

Actions to this stage have included developing:

- ▶ a vision and a strategy for an ENTRschool,
- ▶ goals for management (principals) according to strategy,

**Type of activity:** Programmes to prepare student teachers, teachers and school managers for entrepreneurship education

**Country of implementation:** International

**Institution implementing the activity:** South East European Centre for Entrepreneurial Learning (SEECEL)

**Website or link to project or institution:** <http://www.seecel.hr>

**Main contact:** Maja Ljubić

**Main contact email:** [maja.ljubic@seecel.hr](mailto:maja.ljubic@seecel.hr)

**Telephone:** +385 13040260

**Additional actors or partners involved:** SEECEL Member States (Albania, Bosnia and Herzegovina, Croatia, Kosovo\*, Former Yugoslavia Republic of Macedonia, Montenegro, Serbia and Turkey)

**Application/target audience of activity:** Student teachers, teachers and school managers

**Level of education targeted:** Multiple levels of education

\*This designation is without prejudice to positions on status, and is in line with the UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.



- ▶ goals for teachers according to strategy,
- ▶ defined learning outcomes for pupils,
- ▶ organised resources according to strategy,
- ▶ a plan for training of teachers, other staff and ‘network teachers’ in entrepreneurship learning,
- ▶ support from local community, local businesses and other stakeholders for ENTRschool,
- ▶ a common mindset about ENTRschool and work continuously to develop the culture,
- ▶ a strategy for knowledge sharing and being a lighthouse for other schools.

### Preconditions for success

To be a pilot school in this project, a set of criteria had to be met (e.g. The school must be: accessible by public transport; have a minimum of two school classes per educational age group and be ICT equipped. The majority of teaching staff and school management must use ICT equipment in professional work and the school website must be functional. They must have a pre-existing systematic approach to school-parent and school-local authority cooperation; school staff should have a positive attitude towards entrepreneurial learning and be familiar with modern teaching methods. The member(s) of the school management team should be able to com-

municate in English. There should be a school management team that has experience of project implementation and budget implications. The teaching staff and school management should be familiar with self-evaluation and external evaluation). Other preconditions include involving other countries (the transnational dimension), and receiving support from national governments and from the EU.

### Impact of activity

- ▶ Students, teachers and school management have benefited from participating in the project.
- ▶ By sharing benchmarks, the different countries learn from each other and in this way, they develop better learning economies.
- ▶ Through comprehensive implementation, the instrument used for measuring the impact of the entrepreneurial learning activities on teachers, and school management entrepreneurship competence is developed and tested.

### Further development

The strategic approach to pre- and in-service teacher training will be developed based on previous experience and achievements. There will be a special focus on the mentoring process and inclusion of national institutions responsible for teacher training.

Useful links and resources:

More information is available at:

<http://www.seecel.hr>

<http://www.seecel.hr/default.aspx?id=14>

<http://www.seecel.hr/UserDocsImages/Documents/Documents>

ITE

PREPARE STUDENT TEACHERS  
AND TEACHER EDUCATORS

LEARNING OUTCOMES

EMBEDDED

INTERNATIONAL

# Professional teacher education programme

**HAMK PTEU** is the largest teacher education institution in Finland. It was established in 1959 and joined HAMK University of Applied Sciences in 1996. It provides formal pedagogical qualifications for teachers who work as educators in institutions of higher education, vocational colleges, institutions geared towards adult education and training, in public sector organisations, human resources management, as well as in business and industry.

The professionals entering the highly-competitive teacher education programme must have a Bachelor's degree at the minimum, or the highest available degree in their profession, as well as at least three years of relevant work experience. Most of the student teachers are employed while

completing their teacher education programme, and 30 % of them have no prior experience in teaching.

The aims of the Professional Teacher Education are to provide the student teachers with:

- ▶ the knowledge and competencies to guide and facilitate the learning process of students with diverse backgrounds,
- ▶ the ability to develop own teaching competencies by updating their professional know-how and by recognising the future trends and developments in the employment sector.

**Type of activity:** Programmes to prepare student teachers for entrepreneurial education

**Country of implementation:** Finland

**Institution implementing the activity:** HAMK Professional Teacher Education Unit

**Website or link to project or institution:** [http://portal.hamk.fi/portal/page/portal/HAMK/In\\_English](http://portal.hamk.fi/portal/page/portal/HAMK/In_English)

**Main contact:** Heikki Hannula

**Main contact email:** [heikki.hannula@hamk.fi](mailto:heikki.hannula@hamk.fi)

**Telephone:** +358 36463377

**Application/target audience of activity:** Student teachers in fields such as technology, engineering and social sciences

**Level of education targeted:** Secondary, higher and further



The Professional teacher education programme includes the following modules:

- ▶ basic pedagogical theory and vocational training,
- ▶ vocational pedagogy,
- ▶ in-service teacher training in the teacher student's respective organisation, mostly educational institutions,
- ▶ thesis.

Since 2006 there has also been an optional course of entrepreneurship education: *The basics of entrepreneurship* (3 study credits).

The Professional teacher education programme has been very successful, obtaining a high rate of applications and only able to accept around 33 % of applicants.

### Preconditions for success

- ▶ Entrepreneurship education should be embedded in the mission and the curriculum of the institution.
- ▶ Entrepreneurial objectives should be included in the assessment criteria of learning.

### Impact of activity

Since 2012, entrepreneurship education has been integrated into the objectives of four courses.

- ▶ *Society, working life and education* (4 study credits): student teachers are competent to identify the meaning of entrepreneurship education in working life education.
- ▶ *Guiding of learning* (7 study credits): student teachers are able to promote entrepreneurship in different learning environments.
- ▶ *The networks of education* (3 study credits): student teachers are able to develop cooperation amongst different networks of **enterprises** and other stakeholders.
- ▶ *Teacher training* (15 study credits): student teachers are competent to develop their teaching and expertise goal-oriented and **entrepreneurially**.

ITE

PREPARE STUDENT TEACHERS

CERTIFICATION

EMBEDDED

FINLAND

Useful links or resources:

A presentation on the college by Heikki Hannula is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/heikki\\_hannula\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/heikki_hannula_en.pdf)

On the University website, there is general information about the programme: [http://portal.hamk.fi/portal/page/portal/HAMK/In\\_English/Education/professional\\_teacher\\_education](http://portal.hamk.fi/portal/page/portal/HAMK/In_English/Education/professional_teacher_education)

# Graduates enabling teacher training

Swansea Metropolitan University has adopted a number of innovative methods to prepare student teachers for the reality of the classroom and support them to develop enterprising aptitudes. In one example, the university engages previous students and alumni in the development of current provision and programme development. The alumni may also contribute to actual delivery in the classroom and assessment of the new student teachers. This is known as the 'Continuous Conceptual Review Model' — allowing ex-students to inform current educational practice.

These initiatives have developed from within the university: initially, the visual communications courses in the Art and Design department were consistently using ex-students to evaluate their specialist courses. The

teacher training programmes in the school of education simply adopted this approach. It utilises ex-students who have established their own businesses to facilitate and supervise the learning development of student teachers. For this project, the university won an award at the Internationalising Entrepreneurship Education and Training — Brazil (2006) conference.

The programme is considered good practice because teachers get to experience the world of the entrepreneur, including how to prepare students to work with them in the future.

**Type of activity:** Programmes to prepare student teachers

**Country of implementation:** United Kingdom — England

**Institution implementing the activity:** Swansea Metropolitan University

**Website or link to project or institution:** <http://www.smu.ac.uk>

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Multiple levels



## Preconditions for success

- ▶ Recognition of the value of experience and learning from industry.
- ▶ Recognition from teacher educators of the importance of valuing ex-students and the opportunities this can bring to current educational practice.
- ▶ Despite the relative ease with which educators can keep track of their past students these days, it needs a dedicated long-term approach by someone whom the students respect and want to support. It also simply requires time to facilitate and manage the course.
- ▶ It works as a quality control mechanism of current practice (by comparison to alternative or previous practice).
- ▶ It has allowed for ex-students to engage with current practice, which has increased the motivation of current students, as well as providing the evidence of how this works in the real world as compared to the theory which is taught in classroom.
- ▶ It can change aspects of the course delivery 'on the fly' as the course is able to accommodate the most up to date learning from ex-students and alumni.

## Impact of activity

- ▶ Across the University the main impact is the 'up to datedness' of the delivery and the impact that the relevant learning has in terms of student satisfaction and feedback. Wales has one of the highest survival rates of small 'spin out' graduate firms per capita and Swansea Metropolitan University has consistently been positioned at the top of this list. This also helps the overall credibility of the University, 'because we do what we say we do'.

ITE

PREPARE STUDENT TEACHERS

ENGAGING ALUMNI

LEARNING FROM INDUSTRY

UNITED KINGDOM

Useful links or resources:

Penaluna, A. & Penaluna, K. (2006) Business Paradigms in Einstellung: A Creative industries perspective on enhancing entrepreneurship education. Internationalising Entrepreneurship Education and Training Conference, Sao Paulo, Brazil.

(Awarded 'Best Empirical Paper' Exceptional prize for senior researchers)

Penaluna, A. & Penaluna, K. (2008) Business Paradigms in Einstellung: Harnessing Creative Mindsets for Entrepreneurship Education, Journal of Small Business and Entrepreneurship 21, no 2, pp. 231–50. Available at: <http://www.freepatentsonline.com/article/Journal-Small-Business-Entrepreneurship/204931981.html>

# Compulsory music course from an enterprise approach (pedagogical approach)

The faculty of education in the **University of Lapland** was founded in 1979 and is the oldest faculty at the university. The faculty has about 700 basic degree students, 80 postgraduate students, and 60 staff. Entrepreneurship and entrepreneurship education is a core element within the faculty's strategy.

The teaching of the 'compulsory music course from an enterprise approach' focuses both on entrepreneurial ways of learning and on inclusive pedagogy. This is because through enterprise-based elements such as discovering and creating opportunities, experimenting, reflection and manag-

ing knowledge, each student is able to learn different contents by using own strengths, habits and other individual premises.

The course combines learning music and entrepreneurial thinking and behaviour, especially through making decisions between various alternatives in music. The teacher is a facilitator, integrating student teachers' experiments and reflected knowledge with the objectives and contents in the curricula. In this course the students gain knowledge about music as a phenomenon and about how to teach music. Besides, the focus is on some entrepreneurial attributes and skills: e.g. initiative, self-confidence, perseverance, risk-taking,

**Type of activity:** Entrepreneurial teaching methods and pedagogies

**Country of implementation:** Finland

**Institution implementing the activity:** University of Lapland

**Website or link to project or institution:**

[http://www.ulapland.fi/InEnglish/Units/Faculty\\_of\\_Education.iw3](http://www.ulapland.fi/InEnglish/Units/Faculty_of_Education.iw3)

**Main contact:** Lenita Hietanen

**Main contact email:** lenita.hietanen@ulapland.fi

**Telephone:** +358 404844164

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Multiple levels



decision-making, negotiation skills, tolerance of uncertainty, and learning through mistakes.

Some of the activities undertaken to achieve these are listed here.

- ▶ The teacher organises opportunities for students to make decisions about what content, to what extent, when and with whom to learn. This way, the teacher encourages the students to take risks, manage uncertainty and lead their learning, so to be responsible for own learning paths.
- ▶ Peer-learning, especially collaborative decision-making and problem-solving in interactive discussions are emphasised during the course.
- ▶ Each student takes notes on an own reflective diary. The teacher gives examples of entrepreneurial attributes and skills. After every music lesson the students assess which entrepreneurial attributes and skills they felt strongest during the music learning process and write the assessments down on own diary.

### Preconditions for success

The teacher highlights four main elements which are particularly critical to success.

- ▶ Collaborative decision-making: during and after the learning process — the teacher and students discuss, reflect and evaluate both the method and the knowledge: *How do I learn what I learn?* Each phase of the learning process should be reflected: planning, acting, and the product.
- ▶ Learning by doing. Teachers create various opportunities for students to enable them to participate in innovative ways when defining objectives, in planning the learning methods and in acting. Through reflection the students may construct new knowledge from their experiences and assess both the process and product of learning.
- ▶ The role of the teacher is to be a supporter and a facilitator. The point is that teacher does not simply provide the answers to students but instead lets them find out the knowledge for themselves. However, the teacher has to offer timely support to even situationally diverse students.

Useful links or resources:

In Finnish: [https://www.doria.fi/bitstream/handle/10024/76736/Lenita\\_Hietanen.pdf?sequence=1](https://www.doria.fi/bitstream/handle/10024/76736/Lenita_Hietanen.pdf?sequence=1)

- ▶ Time for reflection: The teacher should organise enough time for both writing on reflective diaries and for reflective discussions during and after the learning processes. Reflection should focus on entrepreneurial ways of learning and on musical contents in curricula.

### Impact of activity

Although not formally evaluated as yet, the observations are that the activity promotes the preparation of teachers for entrepreneurship education.

- ▶ Students are encouraged to study their own entrepreneurial activity through experiments and reflection on all phases of learning process.
- ▶ Students have to act in various entrepreneurial ways when making decisions between given or created opportunities in learning situations.
- ▶ Students may observe their teacher's entrepreneurial activity and arrangements in learning environments.
- ▶ Students are encouraged to apply their entrepreneurial experiences and competence in other disciplines and at different school levels.

### Plans to progress this practice

- ▶ To find out more time for student teachers' mutual creative process in designing new opportunities.
- ▶ To find out more time for critical reflection: social justice and equality of opportunities are integral in inclusive, entrepreneurial approach.

ITE

ENTREPRENEURIAL TEACHING

MUSIC &amp; CREATIVITY

COLLABORATION

FINLAND

# Innovation Consultant: University College Copenhagen

The activity is offered by the **University College** teacher training department for student teachers of primary and lower secondary education. It addresses all levels; primarily student teachers, but also teachers themselves. It is offered to all 3rd year student teachers as an 'extra', marketed through meetings, online, and pamphlets. From spring 2013, it is offered as an EU Intensive Programme for 24 student teachers from five countries.

The activity aims to encourage and develop an entrepreneurial mindset in student teachers, and to equip them with a process model complete with techniques for use in their own future teaching. The model is called the FIRE-model and involves four specific and interrelated stages.

**F** — Finding facts (from books + real life)

**I** — Innovative ideas (generating + selecting)

**R** — Reality check (through prototyping + feedback)

**E** — Evaluation (of product + process and learning)

Student teachers also develop their competences in interacting with the local community; contacting and delivering to real partners outside the educational institution.

**Type of activity:** Innovative teaching methods connected to entrepreneurship education

**Country of implementation:** Denmark

**Institution implementing the activity:** University College Copenhagen, Department of Teacher Education

**Website or link to project or institution:** <http://blaagaard-kdas.ucc.dk/english>

**Main contact:** Lilian Rohde

**Main contact email:** lr@ucc.dk

**Telephone:** +45 41897581

**Application/target audience of activity:** University College student teachers; teachers undertaking CPD

**Level of education targeted:** Students are trained on primary and lower-secondary education



The activity is a 2-week programme, where student teachers contact a working-teacher and bring back a problem that they would like to solve. In 2012 they were asked to bring problems from the area of inclusion and differentiated instruction. The student teachers then discussed the problem in groups, and developed an innovative solution to take back to the teacher.

### Preconditions for success

- ▶ Motivation of student teachers to take part.
- ▶ Participation of primary or lower secondary working-teachers.
- ▶ Efficient organisation, meaning that a relatively limited number of college teachers are able to conduct the activity with a large number of participants.
- ▶ The programme has been developed over 7 years, and includes a short 'taster' version for student teachers when they begin their studies.

### Impact of activity

- ▶ The use of teachers as customers is an innovative method.
- ▶ The approach used fulfils the necessary learning outcomes of entrepreneurship education for student teachers, particularly when student

teachers plan a parallel activity for their pupils as part of their teaching practice placement.

- ▶ It also fulfils a demand for student teachers to learn about entrepreneurship education in practice, as well as methodologically and theoretically.
- ▶ It has a direct relevance for students' professional lives and can potentially develop into user-driven activities across professions.
- ▶ The programme has had a demonstrable impact, for example through the current establishment of a Centre of Innovation for Teacher Training, as well as a project aimed at sharing good practice with other Danish colleges.

### Plans to progress this practice

Teacher training on innovation and entrepreneurship education is progressing through the implementation of a new curriculum for initial teacher training with a compulsory component in all subject areas. Models such as the one described will be part of the tool-kit for students.

ITE

ENTREPRENEURIAL TEACHING

PROCESS TECHNIQUES

TEACHERS AS CUSTOMERS

DENMARK

# Rural enterprises for action learning as a professional and pedagogical tool

Sogn og Fjordane University College has approximately 3 000 students and 300 employees. Entrepreneurial education is compulsory for all student teachers — primary, secondary and vocational — and is a full part of the training curriculum. All students are offered a minimum of two days, training in entrepreneurship and REAL, and it is also offered for two or four days as a continuing education course for practising teachers.

Rural enterprises for action learning (REAL) was initially developed in the US in rural areas in the 80s; Sogn og Fjordane University College owns the rights to the material in Europe, and offers courses and training using

it. REAL builds on evidence that entrepreneurship education practices, where students teach and use material immediately after learning it, lead to a retention rate of 90 %, compared to just 5 % from lectures. The REAL teaching technique **follows the experiential learning model**. This is based around the idea that, as regards learning:

*‘Tell me, and I forget; show me, and I remember; involve me, and I understand’*

It considers the relation between reflection, expansion, application and experience. Crucial, is that the learner has ‘a concrete experience’, an event in

**Type of activity:** Entrepreneurial teaching methods and pedagogies

**Country of implementation:** Norway

**Institution implementing the activity:** Sogn og Fjordane University College

**Website or link to project or institution:** <http://www.hisf.no/en/home>

**Main contact:** Professor Ivar A Offerdal

**Main contact email:** [ivar.offerdal@hisf.no](mailto:ivar.offerdal@hisf.no)

**Telephone:** +47 57676065 / 91300539

**Telephone:** Faculty of Teacher Education and Sports: +47 57676000

**Application/target audience of activity:** Students of Teacher education and Sports

**Level of education targeted:** Multiple education levels (primary, secondary and vocational education). REAL is also offered as a continuing education course for practising teachers



which they actively participate. The learning is then reinforced by reflections on the experience, and then expanded as the learner identifies the abstract ideas, theories and principles behind the learning activity. Lastly, the learner transfers the newly acquired language and skills to situations in the 'real world'.

REAL focuses on schools in both rural and more urban areas, where building a local identity is seen as particularly key, a way of incentivising pupils to 1-day return to the area and start businesses. The syllabus focuses on two broad areas; life skills and attitude related topics, and business related topics. The aim is to focus initially on attitudes, from which key competences then stem. They aim to develop communication, critical and creative thinking, problem-solving, working effectively with others, and a local identity. On the business side, they promote knowledge of market analysis; the broader economy, and marketing and sales.

REAL focuses on partnerships with external institutions/organisations, and support from Faculty Deans/Presidents of the University College. They further develop and road-test novel ideas with 'Model schools' who help to develop the material. The ideas of REAL are spread throughout the institution through training colleagues and selling the idea of entrepreneurship education. The need for patience is emphasised.

### Preconditions for success

It is important that teachers have support from the school to implement and that teachers have patience and clearly:

- ▶ identify learning objectives for the exercise,
- ▶ organise the time and materials needed to carry out the exercise,
- ▶ create a procedure, mostly based on group activity, which results in a presentation,

- ▶ build in reflection on what the learners have done, learned, and how this relates to their objectives,
- ▶ get learners to consider real world application, and how bridges can be made between learning in work, and in one's daily life.

### Impact of activity

- ▶ Most local communities and schools in Sogn og Fjordane County are teaching entrepreneurship and using the material.
- ▶ Student opinion reviews suggest students are satisfied with the REAL experience.
- ▶ It was mentioned as a good practice in a 2004 Nordic survey, and again in a different project in 2012. It was also mentioned in government plans (2004/2006).
- ▶ A research report by Kunnskapsparken, Bodø in 2009 gave REAL a high score/rating, and it has been part of teacher training in Sogn og Fjordane since 2007.

### Plans to progress this practice

All teachers in Sogn og Fjordane education department will participate in a 2-day workshop where implementation of entrepreneurship education in the new curriculum will be discussed. It will become a mandatory subject in future training, as a credit course in pedagogical entrepreneurship and part of cross subject training.

ITE

ENTREPRENEURIAL TEACHING

EXPERIENTIAL LEARNING

COLLABORATION

NORWAY

Useful links or resources:

A presentation by Asst. Professor Ivar A. Offerdal is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/ivar\\_offerdal\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/ivar_offerdal_en.pdf)

# Entrepreneurial programme for 3- to 12-year-old children

The **Viana do Castelo Polytechnic Institute (IPVC)** was founded in 1980. Its mission is to deliver ‘qualified human, cultural, scientific, technical and professional training, to carry out necessary research to accomplish its mission and to cooperate with the regional community of Alto-Minho, particularly with its productive and entrepreneurial sectors’.

The entrepreneurial programme ‘Having ideas to change the world’ for 3- to 12-year-old children is the result of a partnership between the School of Education of IPVC and the Alice Nabeiro Educational Centre — Delta. The project shares a broader definition of entrepreneurship education, seen as a process for enabling learners to turn ideas into action, and is intended to promote entrepreneurial skills known as ‘soft skills’ both in children and in student teachers.

The programme has materials and proposals of activities designed for pre-school children (ages 3–5), first basic cycle school children (ages 6–9) and 2nd basic cycle school children (ages 10–12). Children develop their own projects, based on their own ideas, while they explore the skills required in each of the following areas of knowledge:

- ▶ stimulating ideas
- ▶ sharing ideas
- ▶ what do I want to do?
- ▶ mindsets

**Type of activity:** Entrepreneurial teaching methods and pedagogies

**Country of implementation:** Portugal

**Institution implementing the activity:** Polytechnic Institute of Viana do

Castelo College (IPVC)

**Website or link to project or institution:** [http://portal.ipvc.pt/portal/page/](http://portal.ipvc.pt/portal/page/portal/ese)

[portal/ese](http://portal.ipvc.pt/portal/page/portal/ese)

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Pre-school



- ▶ listening to others
- ▶ talking about the project
- ▶ working with collaborators
- ▶ identifying needs
- ▶ building prototypes for sharing the project
- ▶ collaborators network
- ▶ cycles of tasks
- ▶ project leadership.

In the School of Education of IPVC, within Initial Teacher Education Courses, student teachers receive training on entrepreneurship education that is implemented in an identical format to the entrepreneurship programme for ages 3–12. That is, entrepreneurship education training is designed to foster the development of entrepreneurial skills (knowledge, attitudes and values) for the student teachers themselves. Simultaneously, students learn how to promote entrepreneurial skills for young children (aged 3–12). Entrepreneurship education materials are tested and adapted within 'Teaching Practicum' along students' placement in host schools. Student teachers work collaboratively and explore pedagogical methods suitable for entrepreneurship education. This is also a way of sharing and disseminating entrepreneurship education practices in host schools. The project is assessed using an action-research approach.

### Preconditions for success

- ▶ Schools committed to active learning approaches and project work.
- ▶ Schools with flexible curricula.
- ▶ Integration in teacher education curriculum the development of entrepreneurial skills in student-teachers.
- ▶ A close supervision of entrepreneurship education during students' placement in host schools.
- ▶ Monitoring the process and the results of entrepreneurship education (for example using an action-research design) and to evaluate, adapt and build material to diverse school contexts.
- ▶ Identify good practices, share and disseminate the project.

### Impact of activity

- ▶ The programme enables student teachers to develop entrepreneurship education in pre-schools and basic schools.

ITE

ENTREPRENEURIAL TEACHING

PRIMARY SCHOOL

PROJECT WORK

PORTUGAL

Useful links or resources:

Presentation of the project and front page of the guide 'Ter ideias para mudar o mundo' (Having ideas to change the world).

<http://internacional.ipvc.pt/en/node/17>

# Arteveldehogeschool centre for creativity, innovation and entrepreneurship

**Artevelde University College Ghent** intends to train professionals who are able to push boundaries through the use of creativity, innovative thinking and entrepreneurial spirit. The aim is to challenge students and staff to find new answers, based on new ideas within a rapidly changing educational context. The knowledge centre chaired by the general director and launched in September 2011, takes the lead in this process. This should lead to the achievement of one of the college's main strategic objectives: 'to sow and stimulate creativity, innovation and entrepreneurship among students and employees'. Every single school department (16 departments) has its own

Arteveldehogeschool centre for creativity, innovation and entrepreneurship (ACCIO) project officer.

All the innovations within the curricula are inspired by the skills that an entrepreneur should have including: creativity, opportunity seeking, customer focus, leadership, persistence etc. An online tool was developed to allow pre-and post-testing of students' and teachers' entrepreneurial skills. The ACCIO project officers are trained to detect these skills. Every programme has its ACCIO dictionary that contains skill descriptions and corresponding learning out-

**Type of activity:** Entrepreneurial teaching methods and pedagogies

**Country of implementation:** Belgium

**Institution implementing the activity:** Artevelde University College

**Website or link to project or institution:** <http://www.arteveldehogeschool.be/accio/nl>

be/accio/nl

**Main contact:** Dominique Roodhooft

**Main contact email:** [dominique.roodhooft@arteveldehs.be](mailto:dominique.roodhooft@arteveldehs.be)

**Telephone:** +32 92347477

**Application/target audience of activity:** College teachers and students

**Level of education targeted:** University level



comes. This dictionary facilitates the integration of creativity, innovation and entrepreneurship within the curricula in a systemised way. In addition, the ACCIO creativity officers facilitate brainstorm sessions and teacher training on creative thinking, inspirational lectures and other activities to enhance creative and entrepreneurial actions.

Some of ACCIO's outputs include:

- ▶ 13 brainstorms with teachers and students in the 3 months,
- ▶ gathering 130 students with a creative idea at the start of the academic year,
- ▶ 36 students were supported by ACCIO to pursue the start-up of their own company over the first quarter of 2012,
- ▶ 400 students took the online test in the academic year 2011–2012.

Lessons learned.

- ▶ Teachers are difficult to convince. They associate entrepreneurship education only with business — too narrow a definition.
- ▶ It is difficult to incorporate entrepreneurship education into different subject areas, but the meetings with teachers and students help to transfer good practice from one department to another.

Useful links and resources:

[http://www.youtube.com/watch?v=to06gDoDzu0&feature=player\\_embedded](http://www.youtube.com/watch?v=to06gDoDzu0&feature=player_embedded)  
[http://www.youtube.com/watch?v=\\_7\\_15DdqQ4A&feature=player\\_embedded](http://www.youtube.com/watch?v=_7_15DdqQ4A&feature=player_embedded)  
<http://www.arteveldehogeschool.be/accio/nl/>  
<http://www.scoop.it/t/tools-voor-lesgevers>  
<http://www.scoop.it/t/arteveldehogeschool-en-ondernemen>  
<http://www.scoop.it/t/food-en-drinks-for-creative-brains>  
<https://twitter.com/AccioArtevelde>  
<http://nl-nl.facebook.com/accio.artevelde>

### Preconditions for success

- ▶ Top-down support: management support is essential.
- ▶ Entrepreneurship education should be recognised by the community as relevant education.
- ▶ Motivate teachers to learn and appreciate the relevance of entrepreneurship education.
- ▶ The '13 competencies' model was well defined and structured, which made it easier to understand and implement.

### Impact of activity

- ▶ The successful integration of entrepreneurship into the curriculum and teaching performance, as well as stimulating entrepreneurship and innovation amongst students in order to increase their employability.

ITE

ENTREPRENEURIAL TEACHING

RECOGNISING SKILLS

CURRICULUM INTEGRATION

BELGIUM

# Innovation and entrepreneurship

The former Yugoslav Republic of Macedonia introduced in 2008 the obligatory course 'Business and Entrepreneurship' for the 4th year of secondary school, for 2 hours per week. In order to strengthen the capacity of new teachers to teach the new subject, each year the **National Centre for Development of Innovation and Entrepreneurial Learning (NCDIEL)** organises 2 days of training for all teachers. NCDIEL also provides additional teaching material and are responsible, together with Bureau for Development of Education (BDE), for the organisation of the National Business Plan Competition among secondary schools. The competition is under the auspices of the prime minister.

In the last couple of years, the Government of the former Yugoslav Republic of Macedonia has strongly supported the development of an entrepreneurial

spirit among young people. In November 2011, the government announced that it would introduce a new course 'Innovation and Entrepreneurship' in 1st, 2nd and 3rd year of secondary school (for students aged 14, 15 and 16 years old) from September 2012, and in primary schools this course will be introduced from September 2014 in 8th and 9th grade (12 and 13 years old). Government will support the training of teachers in the new subject.

In November 2011, the government also established the **National Entrepreneurship Educators Network**.

- ▶ Curriculum for new course was developed in the period January–March 2012 and was officially approved by the Minister for Education and Science in mid-March 2012.

**Type of activity:** Innovative teaching methods connected to entrepreneurship education

**Country of implementation:** Former Yugoslav Republic of Macedonia

**Institution implementing the activity:** Ministry for Education and Science of the former Yugoslav Republic of Macedonia

**Website or link to project or institution:** <http://www.mon.gov.mk>

**Main contact:** Vesna Horvatovikj and Radmil Polenakovik

**Main contact email:** vesnahorvatovik@bro.gov.mk (responsible institution), radmil.polenakovik@ncdiel.mk (support for creation of programs, training and implementation)

**Additional actors or partners involved:** Bureau for development in education, National Centre for Development of Innovation and Entrepreneurial Learning (NCDIEL)

**Application/target audience of activity:** Students and teachers

**Level of education targeted:** Primary and secondary



- ▶ In May and June 2012, NCDIEL and CEC (another training-provider company) conducted 2 days of training with 1 300 teachers on the topic related to the new curriculum. The government financed the training.
- ▶ In the period May–August 2012 NCDIEL prepared teaching material and textbooks for the new course. On 30 August 2012, NCDIEL organised 1-day training with 300 teachers in order to be became familiar with the new teaching materials.
- ▶ The new 2012 academic year introduced the new course. The course has 1 hour per week with classes in all 3 years (1st, 2nd and 3rd year).
- ▶ The same procedure will be repeated (curriculum development, training of teachers and material preparation) for the course 'Innovation and Entrepreneurship' that will be introduced in primary schools from September 2014.

The main training topics were:

- ▶ What is an entrepreneurial education?
- ▶ Career guidance.
- ▶ Entrepreneurship: Truths and myths about entrepreneurship; basic principles of entrepreneurship; entrepreneurial process (entrepreneurial clock) and its elements; key entrepreneurial skills; entrepreneurial methods of teaching.
- ▶ How to build an innovative society.
- ▶ How to be innovative? Quest for new ideas; methods for idea generation; systematisation of the ideas and their valuation.

This is a good practice example of a top-down approach of policy support for entrepreneurial education. The government decided that students from 12 to 18 years would be directly involved each year in entrepreneurial education. This means that in each year, there will be 36 direct contact hours on the different topics of innovation and entrepreneurship (in the last year of study 72 hours).

### Preconditions for success

The key ingredients for the success of this activity

- ▶ Policy support by the Government of the former Yugoslav Republic of Macedonia to support the introduction of the new course.
- ▶ Funding from government to train teachers.
- ▶ Good collaboration between BDE and NCDIEL.
- ▶ Extensive experience of NCDIEL staff with entrepreneurial learning, teaching methods and direct contact with teachers.

### Impact of activity

- ▶ The main message from this case is that with proactive government (top-down approach) and the introduction of obligatory course(s) related to entrepreneurship there is an opportunity for all students in the country to become familiar with entrepreneurship and related activities.

ITE

INNOVATIVE TEACHING

GOVERNMENT SUPPORT

BASIC PRINCIPLES

FORMER YUGOSLAV REPUBLIC  
OF MACEDONIA

Useful links or resources:

Presentation of 2-day training of teachers can be found on <http://www.ncdiel.mk> (language of the former Yugoslav Republic of Macedonia).

New curriculum can be found on BDE web page (language of the former Yugoslav Republic of Macedonia).

# Welsh enterprise educators network

Supported by Welsh Government, the **Welsh Enterprise Educators Network** (WEEN) is the source of information and guidance for Enterprising and Entrepreneurial Educators in Wales.

In this project there are 7 networked colleges and universities. The project developed an accredited Masters level teacher-training module in entrepreneurship education. The course was used to develop educators from Vocational Education and Training (VET), Higher Education as well as community education backgrounds.

The activity promotes the preparation of teachers for entrepreneurship education with a structured approach to understanding the relevance of entre-

preneurship to society, economy and education as well as practical knowledge of entrepreneurship education methodologies and pedagogies. The course uses a 'trigger' approach. This is 'curiosity based learning', where teachers contextualise their learning themselves by using it in their own environments.

This work has been supported by **Enterprise Educators United Kingdom** (EEUK). EEUK has been involved in networking, supporting and developing entrepreneurship, with over 500 enterprise educator and practitioners members from 90+ United Kingdom Higher Education Institutions. The involvement of EEUK helped to bring in United Kingdom-wide experience into project development, engage with the EEUK network and to disseminate the results of the project more widely.

**Type of activity:** Networking and exchange of good practice

**Country of implementation:** United Kingdom Wales

**Institution implementing the activity:** Welsh enterprise educators network (WEEN) c/o Swansea Metropolitan, Trinity St David, Wales

**Main contact:** Andy Penaluna

**Main contact email:** andy.penaluna@smu.ac.uk

**Telephone:** +44 1792481199

**Additional actors or partners involved:** Welsh Government, Enterprise Educators United Kingdom

**Application/target audience of activity:** Universities/Teacher Education Colleges/VET

**Level of education targeted:** Interdisciplinary/multiple levels of education



## Preconditions for success

The activity can be considered 'good practice' because of the student feedback and depth of understanding of the mindset.

There are some crucial elements to support future good practice in this area:

- ▶ national networks to openly share practice both good and bad
- ▶ national networks to inform government and to lobby from bottom-up
- ▶ government 'buy in' and initial funding of research (e.g. Welsh Government feasibility study).

To move EE forward in this area the next elements are necessary:

- ▶ better understanding of creativity motivation and deeper thinking about the enterprising person's mindset (not start-up)
- ▶ recognise consensus evolving from experienced educator networks
- ▶ inter-department university something that links and connects different pedagogical approaches, borrow and adapt philosophies.

Useful links or resources:

Entrepreneurship education needs enterprising educators: inspiring new teachers through formal teacher training provision <http://sbaer.uca.edu/research/icsb/2012/Penaluna%20486.pdf>

Different case studies can be found on their webpage: <http://www.enterprise.ac.uk/index.php/case-studies>

A presentation by Andy Penaluna is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/andy\\_penaluna\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/andy_penaluna_en.pdf)

Creativity-based assessment and neural understandings: A discussion and case study analysis: <http://www.emeraldinsight.com/journals.htm?articleid=1891415>

Adeptt Project <http://www.adeptt.eu>

YES CPD Hub [http://ms.fs4b.wales.gov.uk/sub\\_sites/big\\_ideas\\_wales/content/projects/colleges\\_and\\_universities/entrepreneurship\\_hubs.aspx](http://ms.fs4b.wales.gov.uk/sub_sites/big_ideas_wales/content/projects/colleges_and_universities/entrepreneurship_hubs.aspx)

## Impact of activity

- ▶ It has helped to develop networks to share entrepreneurship education practices
- ▶ It has prepared student teachers for entrepreneurship education
- ▶ It feeds into new initiatives throughout the United Kingdom and EU (Through the Acknowledging and Developing Entrepreneurial Practice in Teacher Training (ADEPTT) project and EU Thematic Working Groups)

## Plans to progress this practice

The lessons learned from creating the first Enterprise Educators (credit bearing) teacher-training module is now being disseminated throughout the United Kingdom through Enterprise Educators United Kingdom and has contributed to EU policy discussion. In 2013, this project has evolved into pan-Wales initiative called the YES CPD Hub, also funded by the Welsh Government as part of the Youth Entrepreneurship Strategy.

ITE

NETWORKING

COLLABORATION

CERTIFICATION

UNITED KINGDOM



# Examples of practice in Continuing Professional Development

# Continuing professional development: key messages from examples

To reach the goal of implementing entrepreneurship education sustainably in continuing training of teachers, Europe needs



entrepreneurial schools supporting entrepreneurial spirit in teaching and learning.

- An entrepreneurial school has a **dedicated and committed school management** which supports entrepreneurship education for all students.
- An entrepreneurial school has an **educational concept which is based on teaching for the world of tomorrow**.
- The teaching staff and the general **staff are willing to embrace change** positively.
- An entrepreneurial school has a vision for its future needs and a clear view of how **entrepreneurship education fits into the broader curriculum and development plan**.
- **Entrepreneurship education is mainstreamed into the curriculum, and embedded across all subjects**; it is not treated as a separate subject.
- The school has a **commitment to nurturing the transversal, creative and entrepreneurial skills** children and young people need to perform well not only in school, but also in wider society.
- **Activity-based learning and student-centred methods** are a regular part of teaching and learning.
- Concrete **learning outcomes are defined and are assessed** as part of the exams.
- **Regular evaluation** of the activities are carried out — particularly its **impact on individual students' capability development**.
- **Student feedback is collected systematically** — positive reactions of learners are an important driver for the implementation of entrepreneurial learning and speed up the acceptance of entrepreneurship education.

## Entrepreneurial teachers able to create an entrepreneurial spark

- Entrepreneurial teachers **reward individual initiative, responsibility taking and risk taking**.
- Entrepreneurial teachers are ready to **accept failure as an integral part of a learning process**.
- But entrepreneurial teachers also have learned how to **manage risks**. Failure is an integral part of the entrepreneurial process but it can also be a costly waste of time, skill and commitment. Entrepreneurial teachers know how to **mitigate risks**.
- **Entrepreneurial teachers** have strong team working skills.
- Entrepreneurial teachers are networkers. They **exchange with their peers and meet up** regularly.
- Entrepreneurial teachers **use a variety of creative methods** as innovative pedagogical tools.
- They **let children take responsibility of their own learning process**, for instance by letting them create their own lessons.
- In their assessment methods, entrepreneurial teachers **acknowledge not only the solution, but also the process** of how to get there.
- Entrepreneurial teachers use technology and social media in the classroom to support learning. They **explore new solutions, production techniques and computing tools which support the learning process**.
- They also **use social media for their own peer learning and exchange of information**.

## Entrepreneurial teacher training programmes promoting entrepreneurial methods

- An entrepreneurial teacher training programme **addresses the teachers own entrepreneurial side**.
- The training **treats entrepreneurship not as an isolated skill, but as a concept that requires key competences** such as creativity, technological awareness and project management.

- The training shows how in **every curriculum, there are starting points for entrepreneurial teaching** and aspects which lend themselves well to entrepreneurial learning;
- The **training picks up on existing entrepreneurial activities of the teachers**, and shows how methods they use already fit to the concept.
- Concrete **learning outcomes are defined and assessed**.
- Training courses **focus on practical approaches and include active, participatory methods** which are suitable to create ownership.
- In-service training providers undertake action to **stimulate take-up and promote courses widely** (e.g. by addressing schools directly as well as online, in the annual meetings of teachers etc.).
- Entrepreneurial training courses **stimulate sustainability**; e.g. by encouraging teachers and learners to carefully plan and continuously exchange and reflect on their teaching and learning.

## Partnerships between the educational sector, the business community and the creative industry

- Entrepreneurial schools and projects benefit from **engaging business partners**. Companies and business organisations can provide expertise to entrepreneurship education projects, and they can take part in teacher-training in schools.
- Schools can **partner up with external organisations to engage expertise** in entrepreneurship education **they don't have in-house**.
- **Creative workers** such as artists, designers, architects and scientists **can help schools and teachers to unlock the creativity and raise the aspirations and achievements** of children and young people. Examples show that long-term relationships between creative workers and schools have a positive impact.
- Entrepreneurial institutions and educators **take part in peer learning and exchange** on local, regional, national and international level.

# Matija Antun Reljković High School, Slavonski Brod

Matija Antun Reljković High School seeks to develop its pupils' entrepreneurial skills, including their flexibility, creativity and risk-taking behaviour. In order to do this, it strives to create a school which enables its pupils to have a quality, stable secondary education, as well as providing opportunities for lifelong learning and continued education. In addition, the aim is to build a school which is desirable and tailored to both the students and the local economy.

Key to the school's development was a modernisation and diversification of its facilities, and it now boasts:

- ▶ an orchard, vineyard and wine practicum
- ▶ a vegetable laboratory

- ▶ a forest research laboratory
- ▶ a veterinary laboratory and
- ▶ a chemistry laboratory.

These laboratories and gardens have now become classrooms, for example students now practice 'micro-propagation' (cloning plants), fruit growing and forestry. Additionally, the school recently established a 'Centre for Biotechnological Development', which will not only form a great learning environment for students, but also stimulate the wider Slavonski Brod economy.

**Type of activity:** Entrepreneurial Schools

**Country of implementation:** Croatia

**Institution implementing the activity:** Matija Antun Reljković High School,  
Slavonski Brod

**Website or link to project or institution:** <http://ss-mareljkovica-sb.skole.hr>

**Main contact:** Vlado Prskalo

**Main contact email:** [dvvi@yahoo.com](mailto:dvvi@yahoo.com)

**Level of education targeted:** Secondary school with three individual educational units: the Agricultural Technical School, Veterinary School and Chemical School



## Preconditions for success

- ▶ The attitudes of everyone in the teaching process needs to be open to change. They need to be open to embracing new methods of teaching. The school moved away from traditional classroom teaching methods and embraced project, group and research work as well as practical training and workshops.
- ▶ Support was needed from international partners. The Matija Antun Reljković School received extensive support from the EU. The funds allowed them to build a huge number of technical centres, including: an orchard, vineyard and wine practicum; forest research lab; veterinary lab; micro-propagation laboratory and an arable practicum.
- ▶ Local connections are also key; the school has links to the Brod Posavina County Employment Office, chambers of commerce, agricultural universities and institutes for research and development.
- ▶ The school also needed to be responsive to the supply and demand of the local market. It made a particular effort to entrench a culture where students are proud to work in the fields, opening their eyes to a sustainable living and aligning with the main work in the area — agriculture.
- ▶ It is important to keep up to date with the latest modern equipment, and to use new technologies wherever possible.

## Impact of activity

Its results have been excellent, and are measured in innovative ways.

- ▶ It is not just about the number of graduates, but about the quality of production. Students grow crops such as tomatoes and lavender, selling them to the local community. This is particularly positive as Slavonski Brod, the local area, is famous for its agriculture.
- ▶ Students gain skills in a wide variety of working methods (e.g. students can take blood samples and analyse them).
- ▶ Some students move onto a university education, but more crucial is the entrepreneurial skills and mindset the school sees developing in all of its students.
- ▶ The project 'Regional Biotechnology Research and Development Centre', has allowed the school to help foster local and regional entrepreneurs in agriculture, introducing latest technologies and improving cost-effectiveness.

CPD

ENTREPRENEURIAL SCHOOLS

EMBEDDED

COLLABORATION

CROATIA

Useful links or resources:

For information on other projects see <http://ss-mareljkovica-sb.skole.hr/>

# Manchester Academy

**Manchester Academy** is a school for 11- to 18-year-olds, established by United Learning to 'bring out the best in everyone'. Based in the heart of Moss Side, an area known for its guns, gangs and drugs it has an extremely diverse intake and many young people who are refugees or asylum seekers. Manchester Academy is a specialist business and enterprise academy, aiming to develop enterprising characteristics among students through a range of different formal and informal learning contexts. It is based on the premise that academic skills are not enough; students also need skills and realistic aspirations to succeed in life and become productive citizens.

Curriculum teams embed employer engagement and enterprise both within and across the curriculum. Employer engagement is used as a key method to raise attainment, and all subjects and teachers are involved in entrepre-

neurship education work linked to the curriculum. Additionally, a personalised and holistic career programme runs across all years, with students building a portfolio of work experience from year 7 (age 12) through to year 11 (age 16). Progress is tracked and evaluated.

The school also organises a range of entrepreneurial activities for students, including:

- ▶ Teachers organise six career-linked sessions a year for students, for example, 'why my subject will help me get a job'
- ▶ 'Sector-drop weeks' are arranged to make students familiar with different industry sectors and their professions. The school also runs quizzes and competitions to make students aware of different sectors

**Type of activity:** Entrepreneurial Schools

**Country of implementation:** United Kingdom — England

**Institution implementing the activity:** Manchester Academy

**Website or link to project or institution:** <http://www.manchester-academy.org>

org

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**Telephone:** +44 1612324159

**Additional actors or partners involved:** United Learning

**Application/target audience of activity:** 11- to 18-year-olds

**Level of education targeted:** Secondary Education



- ▶ They produce a 'Skills escalator' which shows students the competences necessary for a certain professions as well as the typical salaries
- ▶ The school works with a range of local business partners. For example, the school worked with the Whitworth Art Gallery on 'Fresh Made Trade', where students worked with artists and entrepreneurs to design and make laptop and phone cases, these are now sold in Manchester art galleries. A percentage of the profits are donated to AfrUKa
- ▶ Future plans include developing an award programme for students, to include units covering work placements, volunteering and setting up micro-ventures. The staff will deliver some of these units, providing them with further in-service training opportunities. They hope these will be supported and recognised by national agencies in the future

### Preconditions for success

The school highlights several elements which are central to its success as an entrepreneurial school:

- ▶ Everyone, from the principal, to the students, teachers and even catering staff buys into the concept of the 'entrepreneurial school'. This concept is embedded in many ways, for example by asking all potential new staff how they think they'll contribute to the 'entrepreneurial school' and holding weekly meetings for newly qualified teachers
- ▶ Entrepreneurship education is mainstreamed into the curriculum, and embedded across all subjects; it is not treated as a separate subject. For example, the partnership with Whitworth Art Gallery is now embedded within the art and textiles departments, ensuring strong CPD for staff
- ▶ The school is part of a wider organisation — United Learning (UL). UL encourages enterprising education in all its schools, with an enterprise

coordinator in each. Additionally, they organise teacher training, the sharing of good practice and joint development of new programmes

- ▶ Specific activities are adaptable to student needs and subject areas which allow students to develop multiple skills
- ▶ Effective and varied local business partnerships are the key. Manchester Academy works with a diverse range of partners including Mercedes Benz, the University of Manchester and Manchester City Football Club. For example, the University of Manchester mentors students for academic success, and offers employment opportunities through schemes such as their Human Resources Mentoring Programme

### Impact of activity

- ▶ *Raised attainment.* There has been a striking improvement in attainment at Manchester Academy since UL took over and they embedded entrepreneurship skills into the curriculum. The previously 'failing' school is now rated 'good' by OFSTED (the Office for Standards in Education, Children's Services and Skills — the United Kingdom schools' inspectorate) with student progress sometimes being rated as 'outstanding'. The school, which has a very diverse mix of students (over 70 languages are spoken) many from low income households (64 % of students are eligible for free school meals), now has 94 % of students gaining 5 A\* — C grades at GCSE, up from 12 % before it became an academy.

CPD

ENTREPRENEURIAL SCHOOLS

EMBEDDED

ATTAINMENT

UNITED KINGDOM

Useful links or resources:

A presentation on the school by Jane Delfino is available here: [http://prezi.com/-zsfnd6\\_babr/the-entrepreneurial-school/](http://prezi.com/-zsfnd6_babr/the-entrepreneurial-school/);

The website of UL: <http://unitedlearning.org.uk/>;

The website of the social enterprise AfrUKa: <http://www.afruka.co.uk/>

## ‘Competencies yes, stereotypes no’

‘Competencies yes, stereotypes no’ is a comprehensive education programme designed to extend and improve the quality of educational services provided by Vocational Education and Training (VET) institutions in the Mikołów District, Poland.

The programme has four modules:

- ▶ Additional classes connected with key professional competencies such as:
  - ▶ English and German language training
  - ▶ Mathematics, physics, engineering
  - ▶ Entrepreneurship education.
- ▶ A psychological and pedagogical support programme for teaching staff.
- ▶ A professional (labour market) advisory programme, including:
  - ▶ global, regional and local labour market trends
  - ▶ individual sessions with a professional counsellor.
- ▶ A programme of courses and apprenticeships.
  - ▶ There is a wide variety of these, including Computer Aided Design (CAD), handling cash registers and gaining driving licences.

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** Poland

**Institution implementing the activity:** Zespół szkół technicznych w mikołowie

**Website or link to project or institution:** <http://www.zst.edu.pl>

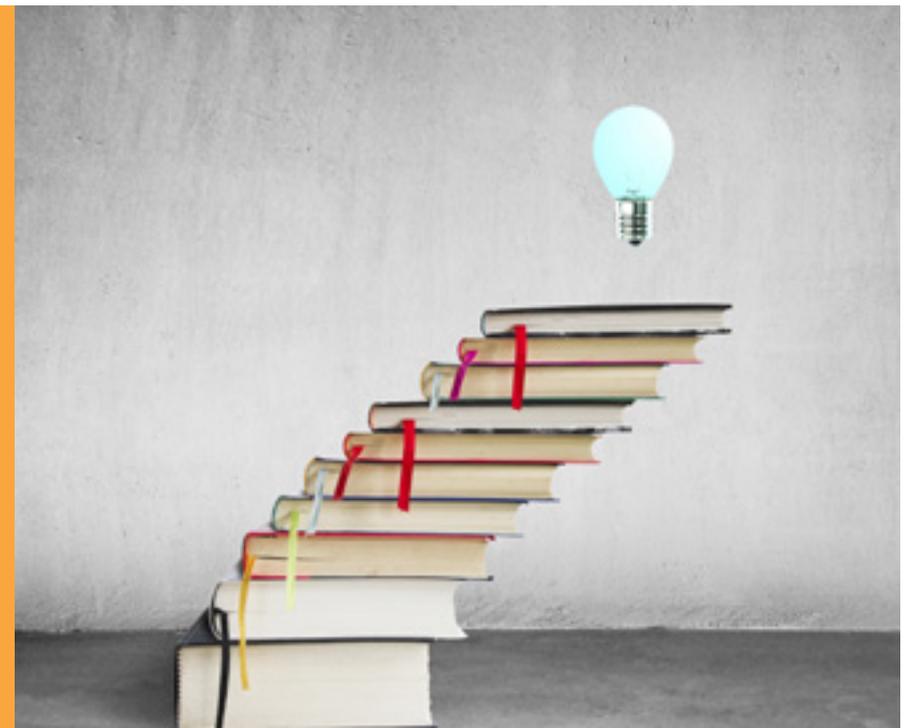
**Main contact:** Monika Gutowska

**Main contact email:** monikagutowska@gmail.com

**Additional actors or partners involved:** Two other schools in the Mikołów District

**Application/target audience of activity:** Teachers and students

**Level of education targeted:** Secondary VET schools



## Preconditions for success

Educational and professional achievement is predicated on students having well developed key competencies. It is these key competencies that this programme focuses on developing, and which are central to them achieving their objectives:

- ▶ to communicate effectively in both native and foreign languages
- ▶ to possess mathematical, scientific and ICT competencies
- ▶ to possess the skill of learning
- ▶ to be socially adept and a good citizen
- ▶ to be able to show initiative and entrepreneurial spirit
- ▶ to have an awareness of other cultures, and an ability to express one's own culture.

## Impact of activity

- ▶ *Raising attainment.* A key objective is to reach at least 60 % of VET students, raising their educational and professional opportunities by improving their 'key competencies'.
- ▶ *Equality of opportunity.* The programme looks to equalise the educational disparities between students by improving the self-esteem of, and offering educational and psychological support to, those who have educational and other difficulties.
- ▶ Looking beyond school to the *labour market.* The programme increases students' ability to consciously plan their career path, taking account of the local market, as well as ensuring that appropriate professional qualifications, courses and apprenticeships are available.

CPD

PREPARING TEACHERS IN-SERVICE

AWARENESS RAISING

ATTAINMENT

POLAND

Useful links or resources:

Presentation on 'Competencies yes, Stereotypes no' (in Polish): <http://zst.edu.pl/pdf/ktsn/KTSNII.pdf>

# YVI virtual learning environment of entrepreneurship education

**Entrepreneurship Education** is a part of the Strategies and Curricula of All Teachers Education in Finland. YVI is a nationwide, multi-science development and research project. YVI is a virtual learning environment that offers:

- ▶ multiple examples of teaching material and methods for entrepreneurship education
- ▶ opportunities for networking through social media
- ▶ a dictionary of entrepreneurship education

▶ information about researches of entrepreneurship education

▶ competitions.

The goals are:

- ▶ include entrepreneurship education in all strategies and curricula
- ▶ development and assessment of entrepreneurship education - pedagogy in teacher education

**Type of activity:** Programmes to prepare teachers and teacher educators for entrepreneurship education

**Country of implementation:** Finland

**Institution implementing the activity:** University of Turku /Lappeenranta University of Technology

**Website or link to project or institution:** <http://www.yvi.fi>

**Main contact:** Jaana Seikkula-Leino (project manager, professor), Heikki Hannula (Co-ordinator of Professional Teacher Education and the Objective of Pedagogical Development and Assessment Finland)

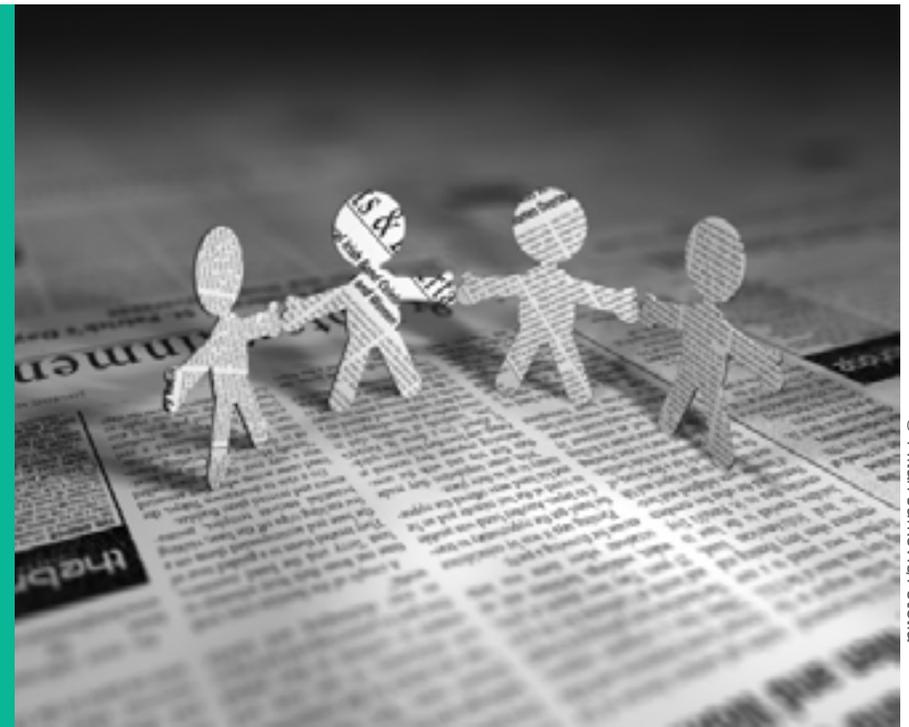
**Main contact email:** [jaana.seikkula-leino@utu.fi](mailto:jaana.seikkula-leino@utu.fi)

**Telephone:** +358 505305902 / Telephone of Heikki Hannula: +358 408307427

**Additional actors or partners involved:** 7 Teacher Training Schools; 3 Departments of Teacher Education; 2 other universities; 6 Universities of Applied Sciences; 4 Teacher Education Units; 10 other partners: organisations and the Ministry of Employment and the Economy

**Application/target audience of activity:** Student teachers

**Level of education targeted:** Multiple levels of education



- ▶ strengthen the network collaboration and regional development among the developers of entrepreneurship education
- ▶ create a dynamic model for entrepreneurship education, in which planning, implementation and evaluation are developed.

### Preconditions for success

- ▶ It is important to receive institutional support to develop the initiative.
- ▶ It is necessary to develop very practical and concrete materials to help implement entrepreneurship education.

### Impact of activity

- ▶ Entrepreneurship education is included in all strategies and curricula. It is a part of all teacher education and all the teachers have skills to teach entrepreneurship education.
- ▶ Teachers' skills to teach have been developed.
- ▶ A unique learning environment for teachers has been created.
- ▶ All the teaching materials are available in one place.
- ▶ Networking has been developed.
- ▶ Multi-science, international research has been strengthened.
- ▶ Teacher educators throughout the country can benefit from the virtual platform.

CPD

PREPARING TEACHER EDUCATORS

VIRTUAL LEARNING

TEACHING MATERIALS

FINLAND

Useful links or resources:

The project website: <http://www.yvi.fi/>

A presentation by Jaana Seikkula-Leino is available here: [http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/jaana\\_seikkula-leino\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/promoting-entrepreneurship/files/education/dublin/jaana_seikkula-leino_en.pdf)

Research and events on entrepreneurship education in the Lappeenranta University of Technology: <http://developmentcentre.lut.fi/hankesivusto.asp?hid=7&alasivu=33>

# Enhancing entrepreneurial spirit in teachers and students

**Initiative for start-ups and business transfer (IFEX)** is a unit in the Ministry of Finance and Economics of Land Baden-Württemberg. They undertake a number of activities designed to foster a sense of entrepreneurship in schools by:

- ▶ Sensitising pupils to entrepreneurial thinking and acting
- ▶ Enhancing the idea of self-employment/entrepreneurship as a vocational option
- ▶ Strengthening their understanding of economic processes and
- ▶ Improving their social competencies and 'soft skills'

In cooperation with the Ministry of Education IFEX offers different projects for school, teachers and pupils. One example is a specific teacher training programme, organised by the Ministry of Education in cooperation with the competence centre of Würth. The content of the training is implemented through lesson-related or educational school projects (e.g. foundation of mini-enterprises/school firms or competitions), as well as helping connect teachers with companies.

The programme begins with a kick-off meeting and a self-learning period (usually 6–7 weeks) online with the European Business Competence Licence. Following this is, a one-day workshop with the enterprise simulation game 'easy business'. The most essential part of the programme — the week spent

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** Germany — Baden-Württemberg

**Institution implementing the activity:** Initiative for start-ups and business transfer (IFEX), a unit in the Ministry of Finance and Economics of Land Baden-Württemberg

**Website or link to project or institution:** <http://www.gruendung-bw.de>

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**Telephone:** +49 7111232765

**Additional actors or partners involved:** Ministry of Education, Youth and Sports in Baden-Württemberg, Chambers of Industry and Commerce; Chambers of Trade

**Application/target audience of activity:** Teachers

**Level of education targeted:** Teachers in secondary schools that provide a general education



in a company — follows. On the last day of this, the teachers plan an economic project to undertake with their pupils during the next school term. The following year teachers exchange their experiences of the project during a one-day workshop; a written report is then published on the Internet, for all to see.

Another programme run by the Ministry of Education in cooperation with the Ministry of Finance and Economics, and the Chambers is the ‘Educational cooperation between schools and enterprises’. The cooperations are established by a contract between school and company. The aim is a win-win situation for both partners. A regional steering group specifically established for that purpose matches schools and companies.

### Preconditions for success

- ▶ Economic education is already part of the national curriculum in all schools in Baden-Württemberg. Projects to foster economic knowledge are welcome.
- ▶ Involves a network of actors and deliverers. IFEX is part of the Ministry of Finance and Economics, and works closely with the Ministry of Education, Youth and Sports as well as with teachers; business organisations; entrepreneurs; business owners; private initiatives; project executing organisations and national projects such as JUNIOR and business@school.
- ▶ Time spent with a business is critical. The week that teachers spend in a company during their training is absolutely the key to forging the commercial links used when they return to their schools.

- ▶ Follow-up is essential. The 1-day workshop and publication of reports and best practice online allows the sharing of long-term experiences of entrepreneurship education.

### Impact of activity

- ▶ Around 50 teachers a year take part in the teacher training programme, part of which fosters contacts between schools and companies, facilitating cooperative work.
- ▶ Since 2008, 1 700 secondary schools in Baden-Württemberg now work with 3 500 companies, meaning around 95 % of all general education secondary schools cooperate with companies.

CPD

PREPARING TEACHERS IN-SERVICE

ENTERPRISE SIMULATION

COLLABORATION

GERMANY

# Acknowledging and developing entrepreneurial practice in teacher training

**Acknowledging and developing entrepreneurial practice in teacher training (ADEPTT)** is a Leonardo Da Vinci-funded project formed by a partnership of 13 institutions in nine EU countries. It is a training course which provides more focused and hands-on training opportunities to support and improve enterprising teaching practice. The training takes 2 days, but can be extended if requested. It focuses on entrepreneurship education under the prism of 'effectuation' — the practical means for accomplishing something. 'Effectuation' is a logic model and a process that can be used as teachers develop entrepreneurial plans. It gets teachers to consider whether their action is doable, worth doing and feasible.

It follows five key principles:

- ▶ *'Bird in the hand'* — realise that you don't need a blockbuster idea, or to run after 'fantastic' opportunities, just a solution to a simple problem.
- ▶ *'Affordable loss'* — consider how much time you can realistically invest, given that the venture might fail.
- ▶ *'Crazy quilt'* — as much as possible, form partnerships with other people and organisations.

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** Spain

**Institution implementing the activity:** Valnalón

**Website or link to project or institution:** <http://www.valnalon.com>

**Main contact:** Ivan Diego Rodríguez

**Main contact email:** [ivan@valnalon.com](mailto:ivan@valnalon.com)

**Telephone:** +34 9856982227

**Additional actors or partners involved:** GrijpdeBuitenKans — An independent Dutch organisation aiming to support educational institutions' provision of entrepreneurship education

**Application/target audience of activity:** A mix of school managers and teaching staff from the same institution

**Level of education targeted:** CPD for teachers in all levels of education



- ▶ *'Lemonade'* — embrace surprises that arise from uncertain situations, remaining flexible rather than tethered to existing goals.
- ▶ *'Pilot in the Plane'* — focus on activities within your control; the future is neither found nor predicted, but made.

### Preconditions for success

- ▶ School management's commitment is extremely important.
- ▶ The starting point of the training is to elaborate on existing entrepreneurial activities, teachers to participate, and consider what they already do.
- ▶ Entrepreneurial projects must learn to be sustainable.
- ▶ Learn to manage risks. Failure is an integral part of the entrepreneurial process but it can also be a costly waste of time, skill and commitment. The training course therefore makes extensive use of the 'effectuation canvas' to help teachers to understand and mitigate their risks.
- ▶ The training course is not a theoretical simulation. Teachers have to come up with a concrete and validated educational arrangement.

### Impact of activity

The training course has six specified objectives, which aim to produce a lasting shift in attitude and practice.

- ▶ Teachers work out a new (educational) product or services, ready to use 'next week'.
- ▶ Teachers learn how to validate the project or new learning environment.
- ▶ Teachers persuade different partners to facilitate the learning process of the students.
- ▶ Teachers can define the mutual benefits of the entrepreneurial activity (win-win), both for the entrepreneur and as a form of education.
- ▶ Teachers learn how to use and translate the entrepreneurial vocabulary.
- ▶ Teachers recognise and appreciate entrepreneurial behaviour and know how to 'leverage' resources.

CPD

PREPARING TEACHERS IN-SERVICE

ENTREPRENEURIAL PLANS

PRACTICAL METHODS

SPAIN

Useful links or resources:

Ivan Diego's Prezi presentation: [http://prezi.com/\\_-gd384z1zbg/adeptt-ivan-diego/](http://prezi.com/_-gd384z1zbg/adeptt-ivan-diego/)

Grijpdebuitenkans website: <http://www.grijpdebuitenkans.nl/>

# Creativity, culture and education — Creative Partnerships

The **Creative Partnerships** programme was the United Kingdom's flagship creative learning programme running throughout England from 2002 to 2011. It brought creative workers such as artists, architects and scientists into schools to work with teachers to unlock the creativity and raise the aspirations and achievements of children and young people. They worked with over 1 million children and 90 000 teachers in more than 8 000 projects. Up until 2011, Creative Partnerships was funded by Arts Council England however funding was withdrawn due to spending cuts in the Arts. Since then Creativity, culture and education (CEE) has diversified to work on a more international basis including working in Australia, Germany, Lithuania, Norway, Pakistan, Qatar, South Korea and with the Organisation for Economic Cooperation and Development (OECD). CCE continues to expand its reach and influence with new ideas, projects and partnerships across the globe.

Creative Partnerships embeds long-term relationships between creative partners and schools. Schools apply to take part having identified a specific need or problem they wish to address; for example boys' reading, parental involvement or playground behaviour. A specially trained Creative Agent is allocated to the school and they work with the teachers, students and other creative practitioners to develop and deliver a project which provides a creative solution to the school's individual challenge.

One example of a creative solution comes from a primary school in a deprived area of Stoke-on-Trent that was in need of a new space. They wanted something different and talked to the children about what makes a good learning space. Lots of ideas emerged including a tree house, a beach but they settled on the idea of converting an old aeroplane into a classroom because they felt

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** United Kingdom — England

**Institution implementing the activity:** Creativity, Culture and Education (CCE), a United Kingdom-based NGO and charity, website: <http://www.creativitycultureeducation.org>

**Website or link to project or institution:** <http://www.creative-partnerships.com>

**Main contact:** Paul Roberts, Chairman

**Main contact email:** [dee.keane@cceengland.org](mailto:dee.keane@cceengland.org)

**Telephone:** +44 8448112145

**Application/target audience of activity:** Children and young people in schools and their teachers

**Level of education targeted:** Primary and Secondary



they could learn anything in a plane. It would allow the students the opportunity to virtually travel in time, visit the Caribbean, rainforest and deserts. The children were involved in making the key decisions throughout the process from buying the plane, arranging planning permission to procuring a professional designer to fit the plane out as a classroom.

As well as pupil-centred activities, Creative Partnerships also supports teachers by delivering classroom based, ongoing professional development and knowledge sharing. Planning, training and development sessions are held, which allow school staff and creative professionals to work together to plan, reflect, think, and experiment with new creative approaches to teaching and learning.

### Preconditions for success

- ▶ The school leadership team must be engaged and committed to the project, and the wider teaching staff willing to embrace change positively.
- ▶ The school needs to have a commitment to nurturing the transversal, creative and entrepreneurial skills children and young people need to perform well not only in school, but also in wider society.
- ▶ A well-developed planning and evaluation framework encourages teachers, learners and creative professionals to carefully plan and continually reflect on their learning. It also creates a space for learning, improving and embedding practice on an ongoing basis.

### Impact of activity

Creative Partnerships has been extensively evaluated, capturing its impact on pupils, teachers, parents and the wider United Kingdom economy:

- ▶ Higher attainment. The National Foundation for Educational Research (NFER) tracked 13 000 young people who had participated in a Creative Partnerships programme. Attainment data showed that those who took part out-performed the national average at Key Stages 3 and 4, despite being from economically and socially challenged areas.

- ▶ Increased confidence. A survey of head teachers by the British Market Research Bureau (BMRB) suggested that they felt that Creative Partnerships improved pupils' confidence in 92 % of cases, communication skills in 91 % and motivation in 87 %.
- ▶ More creative teachers. In the same survey, head teachers also highlight an improvement in the skills of their teachers, with 94 % seeing an improvement in skills, 92 % being more effective in using creative professionals in the classroom, and 92 % more willing to take a creative approach.
- ▶ Teacher expectations enlightened. Teachers' expectations and belief in their pupils were also raised — with several teachers mentioning how challenged and enlightened they were to see pupils who normally struggle in their classes, excelling in creative lessons. This is particularly important given the link between teacher expectation and pupil performance.
- ▶ Parents more engaged with their children's learning. Nottingham University research shows creativity is effective in stimulating parental interest in what their child is doing at school. This is particularly true for parents who might themselves have struggled at school.
- ▶ Benefits for the wider economy. A report from consultants PwC suggests that Creative Partnerships will have generated in early £4 billion net positive benefit for the United Kingdom's economy.

CPD

PREPARING TEACHERS IN-SERVICE

CREATIVE PARTNERS

EMBEDDED

UNITED KINGDOM

## Programa Escolhas (Choices Programme)

*Programa Escolhas* is a Portuguese government programme, created to promote the social inclusion of children and young people in the most vulnerable communities, particularly amongst immigrants and ethnic minorities. The programme aims to promote equality of opportunity and to reinforce social cohesion. The main priorities for intervention areas are: school inclusion and non-formal education; vocational training and employability; civic and community participation; digital inclusion; and entrepreneurship and empowerment. The last, entrepreneurship and empowerment, is a new area, created as a result of growing investment in the mobilisation of local communities.

Entrepreneurship and empowerment involve activities in the following four sectors:

- ▶ skills development activities
- ▶ financial and knowledge-based support for projects planned, implemented and evaluated by young people
- ▶ promotion of youth group creation to help foster grassroots initiatives
- ▶ visits, internships and partnerships with other civil society organisations.

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** Portugal

**Institution implementing the activity:** Ministry of the Presidency of the Council of Ministers (Portuguese Government);

**Website or link to project or institution:** <http://www.programaescolhas.pt>

**Main contact:** Dana Redford

**Main contact email:** [dana.redford@redfordresearch.com](mailto:dana.redford@redfordresearch.com)

**Application/target audience of activity:** Young people (and their teachers) from deprived communities

**Level of education targeted:** Secondary, Higher, VET



One element of this training programme is 'Uma Escolha de Futuro' (A Choice for the Future), aiming to develop the personal, social and professional skills of young people between 14 and 24 by helping them to implement short, medium and long term projects. The programme is divided into two complementary guides, one for teachers and one for young people. It involves five units to help them go out into local communities, identify entrepreneurs, explore and act on entrepreneurial ideas, develop their digital literacy and implement a business idea.

### Impact of activity

The project has just been renewed for a fifth generation, running from January 2013 until December 2015. The fourth generation saw 130 new projects initiated, all from the bottom-up.

### Preconditions for success

- ▶ Two different guides are created. One is more didactic, structured and information heavy, for teachers and trainers; the second is for young people, and is lighter, more theoretical and contains practical exercises. This split results in the simultaneous creation of a pedagogical tool that can be handled and used by technicians, as well as practical means to develop the entrepreneurial skills of young people.
- ▶ The project is funded and part run by the Portuguese Government — the Ministry of the Presidency of the Council of Ministers, under the High Commission for Immigration and Intercultural Dialogue. It is co-financed by the European Social Fund.

CPD

PREPARING TEACHERS IN-SERVICE

VULNERABLE COMMUNITIES

TRAINING PROGRAMME

PORTUGAL

# UPI project

The **UPI** (meaning 'hope' in Slovenian) project is a series of workshops on creativity, entrepreneurship and innovation, delivered by the Chamber of Crafts of Slovenia in elementary schools. The project had two distinct phases, first, a technical part, preparing the projects/programmes. Following this, workshops were implemented in schools. For the technical phase, the Chamber of Crafts designed training programmes and booklets for mentors and participating children; essentially helping to create a training module.

Each workshop was run by two mentors; one from the school and one from the broader business sector. In each workshop pupils produced business plans — one example of which was selling plants and flowers. The pupils

thought about the organisation of their company; their customers (mostly family); marketing; unique selling points and potential threats (e.g. they could forget to water the plants). Different groups used a diverse range of creative planning and advertising methods. For example, one group made a short YouTube video of their business plan, whilst another produced a booklet which is now available online and in the library of Slovenia. Following on from the initial workshops eight regional events were organised, where children could present their business plans.

In addition to the workshops, the Chamber of Crafts also researched which factors prevented or encouraged young people to become more creative. This research highlighted a number of possible avenues for improvement, as well

**Type of activity:** CPD programmes preparing teachers in-service for entrepreneurship education

**Country of implementation:** Slovenia

**Institution implementing the activity:** Chamber of Crafts and Small Business of the Republic of Slovenia

**Website or link to project or institution:** <http://www.ozs.si>

**Application/target audience of activity:** Mentors and children in elementary schools

**Level of education targeted:** Elementary schools



as drawing attention to some of the successes of the project. Generally speaking, pupils felt that:

- ▶ Teachers did not make enough use of ICT in class
- ▶ More use of ICT would make learning more interesting
- ▶ The main factors which influence children's creativity and innovativeness are the environment, family and an individual's personality

It was discovered that most schools participated in the workshops because they wanted to find new and interesting methods for engaging children. Indeed, it was found that those teachers who participated in the workshops became much more active in using ICT in their teaching methods.

### Preconditions for success

There were two key factors which were critical to the success of this project.

- ▶ High level, and broad, stakeholder involvement; for example, the Ministry of Economy financed the project and 62 different regional Chambers of Crafts participated.
- ▶ Head teachers were fully on-board with the project, crucial since they were the principal decision-makers as regards whether their school would take part.

### Impact of activity

In total 31 elementary schools participated in 87 workshops, with the children producing 84 business plans. These figures met all the aims of the project in terms of number of young people engaged, and number of workshops. In addition:

- ▶ The project successfully developed technical teaching tools for mentors, and integrated a mentoring programme into the national curriculum.
- ▶ For the pupils, it introduced and promoted different professions to elementary school children and further developed their entrepreneurial mindsets and ideas.
- ▶ Teachers became more confident users of ICT in their teaching methods, which in turn made classes more interesting for the pupils.

CPD

PREPARING TEACHERS IN-SERVICE

AWARENESS RAISING

TEACHING TOOLS

SLOVENIA

## Life 2 project — ‘Train the Trainer’

The ‘[key competencies in life skills project](#)’ or **LIFE 2** for short, helps young people to develop the skills and confidence needed in the workplace during their vocational training, especially entrepreneurship skills such as creativity and innovation. The ‘Train the Trainer’ pack, was built by specialist teams from the five partnership countries. The pack aims to help teachers integrate life skills into their specialist vocational areas and aids teachers to build closer links with employers.

The pack itself contains three sections.

- ▶ A user guide, to allow adaptation of the pack to suit organisational and learner needs.
- ▶ ‘Train the Trainer’ resources.
  - ▶ Part 1: provides underpinning knowledge and facilitates understanding of the concept of ‘key competencies in life skills’, including tasks to reinforce teachers’ understanding.

**Type of activity:** Innovative teaching methods and concepts linked to entrepreneurship education

**Country of implementation:** Portugal, United Kingdom, Denmark, Romania, Spain

**Institution implementing the activity:** Denmark — Niels Brock Business College; Spain — CEBANC; European Forum of Technical and Vocational Education and Training (EfVET); Portugal — Anespo; Romania — The Centre for Development and Innovation in Education (TEHNE); United Kingdom — Norton Radstock College and Bath Spa University

**Website or link to project or institution:** <http://www.life-2.eu>

**Main contact:** Rosaleen Courtney and Irene Ferreira

**Main contact email:** [rosaleen.courtney@nortcoll.ac.uk](mailto:rosaleen.courtney@nortcoll.ac.uk) and [irene.ferreira@anespo.pt](mailto:irene.ferreira@anespo.pt)

**Application/target audience of activity:** Vocational teachers, teacher educators, vocational learners, employer networks, organisations which support disadvantaged groups and policy-makers/influencers

**Level of education targeted:** CPD for teachers in vocational education institutions/organisations and as part of initial teacher training for VET teachers



- ▶ Part 2: provides different practical models for embedding life skills fully into vocational teaching.
- ▶ Part 3: includes a range of 'Train the Trainer' activities, to be used as part of a structured training programme for vocational teachers, or by the teachers with their own students.
- ▶ A good practice section. This includes sources of inspiration from across Europe, where key competencies in life skills have been successfully embedded into vocational teaching.

### Preconditions for success

- ▶ *Evidence.* LIFE 2 is based on a robust evidence base. It builds on the findings of the first LIFE project (see <http://www.life-keyskills.info>); research conducted by the European Civil Society Platform on Lifelong Learning Preconditions for Success; and the 2004 'Skills for Life as the Key to Lifelong Learning Conference' where recommendations and examples of best practice were presented.
- ▶ *Feedback.* It builds on extensive feedback from employers, teachers and learners in all five partner nations.
- ▶ *Funding.* It is supported by the European Commission's Leonardo Da Vinci programme. This funding scheme, part of the EC's Lifelong Learning Programme supports a wide variety of different activities of varying scales.

#### Useful links or resources:

Leonardo da Vinci Programme: [http://ec.europa.eu/education/lifelong-learning-programme/ldv\\_en.htm](http://ec.europa.eu/education/lifelong-learning-programme/ldv_en.htm)

Anespo — Associação Nacional de Escolas Profissionais, PT: <http://www.anespo.pt/>

CEBANC, ES: <http://www.cebanc.hezkuntza.net/web/guest/proyectos###>

Bath Spa University, United Kingdom: <http://www.bathspa.ac.uk>

Niels Brock Business School, DK: <http://www.cbs.dk>

TEHNE, RO: <http://www.tehne.ro/>

EFVET, <http://www.efvet.org/>

Video explaining lifelong learning key competencies: <http://www.youtube.com/watch?v=RD-elxM1lw>

CPD

INNOVATIVE TEACHING

TEACHING MATERIALS

PROJECT WORK

EUROPE-WIDE

# Innovation in entrepreneurial pedagogy

This course used a variety of creative methods as innovative pedagogical tools, delivered to students at **Rouen Business School (RBS)** and Aalto University. The course had a wide variety of elements, including: each student wrote an 'entrepreneurial story', inspired by an abstract painting; the students contributed an essay on the link between art and entrepreneurship; and delivered a session on the entrepreneur as an actor. Romain Artus (France) provided his paintings as inspiration. The course aimed to learn how different pedagogical tools (e.g. art, music, story writing and theatre) impacted attitudes towards entrepreneurship.

The main aspiration of the course was to discover each individual's ability to 'think outside the box'; seeing this as an essential entrepreneurial competency. It tried to encourage each student's entrepreneurial mindset, and measured their ability to adapt to new situations by using unusual learning tools (such as music and art). The sessions were delivered in collaboration with a variety of artists, local and international. For example Dr Joelle Lagier came to talk about her life as an artist, as did a Japanese photographer based in Tokyo.

Future plans include rolling out this programme in different international contexts, as well as trialling it in more disadvantaged parts of society, such as with unemployed people.

**Type of activity:** Innovative teaching methods and concepts linked to entrepreneurship education

**Country of implementation:** France

**Institution implementing the activity:** Rouen Business School (RBS)

**Website or link to project or institution:** <http://www.rouenbs.fr/en>

**Main contact:** Rita Klapper

**Main contact email:** [rgklapper@gmail.com](mailto:rgklapper@gmail.com)

**Additional actors or partners involved:** Artists, including Romain Artus and Joelle Lagier (France) and Beata Joutsen (Finland)

**Application/target audience of activity:** Undergraduate and postgraduate students at Rouen Business School; Helsinki School of Economics (Aalto University)

**Level of education targeted:** Higher (Undergraduate and Postgraduate)



## Preconditions for success

In order for innovative entrepreneurial pedagogy to spread, numerous things must change:

- ▶ More investment in terms of time and financial resources is needed worldwide to integrate non-traditional innovative and creative entrepreneurship courses in Further and Higher Education
- ▶ More openness to innovative pedagogy, not necessarily technology-based, in Further and Higher Education governing institutions, but also teachers themselves
- ▶ A shift in focus needs to occur, from traditional theory and case studies to a creativity and innovation orientated approach
- ▶ There needs to be a re-emphasis on entrepreneurial values, entrepreneurial thinking and entrepreneurial feeling to promote a 'withness' instead of an 'aboutness' approach

## Impact of activity

The impact of this course was measured both quantitatively and qualitatively:

- ▶ Individuals learn to recognise their own potential, and achieve a change in mindset where 'becoming an entrepreneur becomes feasible'
- ▶ Quantitative results looked at changes in perceptions of the '*characteristics of an entrepreneur*'. Most impressively there was around a 50 % increase in the proportion of students who felt that '*anybody can be an entrepreneur*'

- ▶ The feedback from students was very good, with one suggesting '*it is nice to find entrepreneurship in new places, and to be able to link it with art*'

The entrepreneurial story writing, inspired by contemporary art, was felt to be a '*completely innovative experience which surprised with its refreshing outcome, and proved [to me] the presence of my creativity*'. It was also felt to tie in well with the modern world where '*creative and skilful entrepreneurs are highly appreciated and welcomed*'.

- ▶ In the future, there are plans to instigate a research programme evaluating the changes in mindset that innovative pedagogy can achieve in different international contexts

CPD

INNOVATIVE TEACHING

TEACHING MATERIALS

CREATIVE THINKING

FRANCE

# Méthode d'initiation au métier d'entrepreneur

The *Méthode d'initiation au métier d'entrepreneur* (MIME) is a simulation method designed to improve entrepreneurial capabilities.

This method was created 10 years ago for would-be entrepreneurs, and now has been successfully adapted for employees, students and teachers and is delivered to over 1 000 participants in France each year. It is a simulation designed to provide participants with an understanding of the fundamental mechanisms that govern the operation of businesses, whilst producing situations which call for and enhance entrepreneurial skills and problem solving.

MIME prioritises a global, complex and dynamic approach to the functioning of business; never separating the desire to understand from the pleasure of doing. Computers are banned throughout, with the emphasis instead resting on the essential contributions of people to businesses. Four teams each establish a business, all of which create and market the same product. The teams then compete against each other over 2 years, each having to manage decision-making and risk-taking as they drive their business forward. The work is based on four operational principles:

- ▶ different ways of resolving problems are only considered once a problem has been clearly identified

**Type of activity:** Innovative teaching methods and concepts linked to entrepreneurship education

**Country of implementation:** France

**Institution implementing the activity:** IZER Institut Européen de L'Entrepreneuriat Rural

**Website or link to project or institution:** <http://www.i2er.org>

**Application/target audience of activity:** Teacher trainers for entrepreneurship; VET trainers; students; adult learners

**Level of education targeted:** High schools and Universities



- ▶ new tools are only used once the need for them has been clearly expressed
- ▶ conclusions result from exchanges between students
- ▶ any hypotheses that come about need to be directly tested.

### Preconditions for success

MIME is part of the MANAGE project, financed by the EU Lifelong Learning Programme's action 'Leonardo da Vinci — Transfer of Innovation'. This has allowed them to translate the MIME method into English, Italian, Romanian and Spanish.

### Impact of activity

The MIME method aims to have an impact on students' understanding of business and business roles.

An understanding of:

- ▶ the fundamental economic mechanisms which govern the functioning of businesses
- ▶ relationships that business develop with their environments

- ▶ essential contributions by the men and women who work in businesses.

A realistic view of the:

- ▶ position of a company manager
- ▶ skills they need to make use of
- ▶ the role they play in the making of decisions.

A practical analysis of:

- ▶ widely-used management tools
- ▶ accountancy and financial statements
- ▶ strategies and processes.

CPD

INNOVATIVE TEACHING

PROBLEM SOLVING

PROJECT WORK

FRANCE

Useful links or resources:

Website of la méthode MIME: <http://www.methode-mime.fr/>

# Networking with business community

*Zöld Kakas Líceum* 'Green Rooster' is a high school for children who have dropped out of mainly secondary education. It caters for 200 15–26 year old students, giving them a second chance to complete a four-year, combined educational and college preparatory programme. Central to its mission is finding new and innovative ways to work with both their students and teachers to ensure academic and personal growth, for example through their Vocational Education Programme.

They work with early school leavers and high school graduates, helping to train them in filmmaking and photography. Two teachers lead a team of young people, who then go out into the community to try and win work.

The trainees learn through doing, taking part in a 2 year programme in a supportive, school-based workplace. Teachers are an integral part of the projects, helping the young people to organise the projects, develop ordered content and communicate with business partners. Teachers' pay and students' scholarships depends partly on the success of the project.

**Type of activity:** Innovative teaching methods and concepts linked to entrepreneurship education

**Country of implementation:** Hungary

**Institution implementing the activity:** Zöld Kakas Líceum

**Website or link to project or institution:** <http://www.zoldkakas.hu/kuszli/>

**Main contact:** Mate Schnellbach

**Main contact email:** [schnellbach.mate@gmail.com](mailto:schnellbach.mate@gmail.com)

**Application/target audience of activity:** Young people aged 15–26 who have failed to complete high school

**Level of education targeted:** Upper secondary



## Preconditions of success

- ▶ The main precondition for success is the guarantee of freedom; teaching in this style needs to be flexible, so managers need to be open to risks.
- ▶ The school needs to have the freedom to innovate, and to some extent be left alone by wider educational authorities.
- ▶ There needs to be a high level of teacher entrepreneurship; they are actually working as entrepreneurs, a large departure from the normal teacher role.
- ▶ Lastly, there must be a supportive organisational culture and structure.

## Impact of the activity

Students boast some impressive achievements:

- ▶ Job entries. Last year seven of the 12 participants got a full or part-time job during their training, and six of 14 this year have.
- ▶ Demand from business. The school faces a lot of demand from small companies to work with them (from fields like marketing, arts, and practical services).
- ▶ National recognition. Students have also been successful in numerous national awards in Hungary — for example in the last two years two students' documentaries have won a Contest for Student Journalists.

CPD

INNOVATIVE TEACHING METHODS

VOCATIONAL LEARNING

COLLABORATION

HUNGARY

Useful links or resources:

This documentary won a Contest for Student Journalists: <http://www.youtube.com/watch?v=oX41RKybM9E>

Some students' photos: <https://picasaweb.google.com/100088693387758940555/KiallitasKepei?authkey=Gv1sRgCNnzy6eawrkBOQ>

# Tknika — Innovation centre for vocational and educational training and lifelong learning

Tknika is part of the Basque Country's ongoing efforts to place Basque Vocational Training at the forefront of Europe. Tknika develops innovative projects in different areas: technology, teacher training and innovation management. Tknika is an open and cooperative centre, forging productive alliances with private enterprise, research departments, universities and technology centres. They run innovation projects in four main fields:

- ▶ technology
- ▶ ICT
- ▶ management
- ▶ methodology and pedagogy.

Tknika encourages teachers and management teams in Technical VET colleges to present and work on projects that involve an innovation. This innovation can take various forms, for example; an innovation in the way they manage the college or communicate with society; in the way they interact with companies; in the way they provide training, adapt new technologies, or acquire new knowledge. Motivators in Tknika manage the projects and develop them with teachers from the colleges. Most teachers continue to teach in their colleges, but with reduced schedules to allow them to participate in projects with Tknika.

**Type of activity:** Innovative teaching methods and concepts linked to entrepreneurship education

**Country of implementation:** Spain — Basque Country

**Institution implementing the activity:** Tknika, a subsidiary of the Sub-Department of Vocational and Educational Training and Lifelong Learning, Department of Education, Language Policy and Culture of the Basque Government

**Website or link to project or institution:** <http://www.tknika.net>

**Main contact:** Iñaki Mujika, Director of Tknika, [imujika@tknika.net](mailto:imujika@tknika.net)

**Additional contacts:** Samuel Triguero, Coordinator of Management Area, [striguero@tknika.net](mailto:striguero@tknika.net); Victor Arias, Internationalisation Monitor, [barias@tknika.net](mailto:barias@tknika.net); JLF Maure, Internationalisation Monitor, [jlfernandez@tknika.net](mailto:jlfernandez@tknika.net)

**Additional actors or partners involved:** Public and private VET Colleges Associations in the Basque Country: IKASLAN, HETEL, AICE

**Application/target audience of activity:** Teachers and students in technical VET colleges in the Basque Country

**Level of education targeted:** Intermediate, Higher Level and Further Education in technical VET colleges (public and subsidised)



Tknika's approach has six steps:

- ▶ Tknika develops innovation projects and transfers the results to the VET teachers
- ▶ Teachers use these results to train their students
- ▶ The students transfer this knowledge to their work places
- ▶ Tknika networks with VET teachers (ensuring the transfer of knowledge to the whole system)
- ▶ Tknika collaborates with organisations and individuals who can offer value to the global process
- ▶ Tknika also guarantees excellence in their performance by means of their management model.

### Preconditions for success

- ▶ All activities in the centre focus on entrepreneurial training. Entrepreneurship is not treated as an isolated ability, but as a concept that requires skills such as creativity, technological awareness and project management.
- ▶ Tknika's work is based on an Innovation Management Model called TknikaInnova. This model supports entrepreneurship by rewarding individual initiative, responsibility taking, risk taking and the acceptance of failure. Individuals work in teams to develop specific projects, allowing for greater flexibility and coordination of tasks; each team is responsible for its project, which leads to greater commitment and perseverance in achieving goals.
- ▶ Technology is used extensively. This enables the transfer of knowledge in a faster and more efficient way. Tknika monitors technological developments, exploring new solutions, production techniques and computing tools that will enhance the learning process at the technical VET colleges, and increase productivity in enterprises.

### Impact of activity

#### Tknika:

- ▶ Tknika is well-established and evaluated. Members of an OECD team recently visited Tknika and described the project as an important strength of the Basque Country's higher education policy, recommending its dissemination.
- ▶ Challenges barriers to progress. Tknika helps to overcome specific limitations of the Basque system, particularly habits and customs such as slow decision-making, hierarchical institutions and fear of failure, replacing them with an atmosphere of dynamism, personal initiative and entrepreneurship.
- ▶ Stimulates activity. There is strong demand for Tknika's services from the Technical VET Colleges. They have a wide outreach and scope. Currently they are running 24 innovation projects with 200 collaborators
- ▶ Gets positive returns. Evaluation shows that gains from the programme outweigh initial investment.
- ▶ Annual satisfaction surveys among stakeholders also demonstrate that Tknika is highly valued.

CPD

METHODS FOR TEACHING  
INNOVATION

KNOWLEDGE TRANSFER

COLLABORATION

SPAIN

# Proficient entrepreneurship and entrepreneurial skills

The Network for Training Entrepreneurship (NFTE) originated in New York in 1987, with Belgian operations beginning in 1998. Since then, training has been completed by more than 350 000 young people. NFTE Belgium offers an innovative curriculum in Flanders, Wallonia and Brussels; courses are led by trainers with extensive business experience and provide additional opportunities for under-privileged youth to succeed in their professional and personal lives. As such they provide a concrete bridge between the educational environment and companies.

In *Vaardig Ondernemerschap En Ondernemende Vaardigheden* (Proficient Entrepreneurship and Entrepreneurial Skills) two NFTE certified business trainers go to schools or organisations and provide an entrepreneurship

education training package. The aim of this training is for every young person to develop a business plan for an idea or a project to their liking. In addition to this, they encourage the development of entrepreneurial attitudes, business competences and insights. Practical computer skills are also covered, as these are the key to success in the modern world.

Teachers are able to sit in on the NFTE courses as assistants, and can become certified themselves as trainers if they successfully pass the NFTE Train the Trainer process.

**Type of activity:** Outreach strategies of CPD providers

**Country of implementation:** Belgium

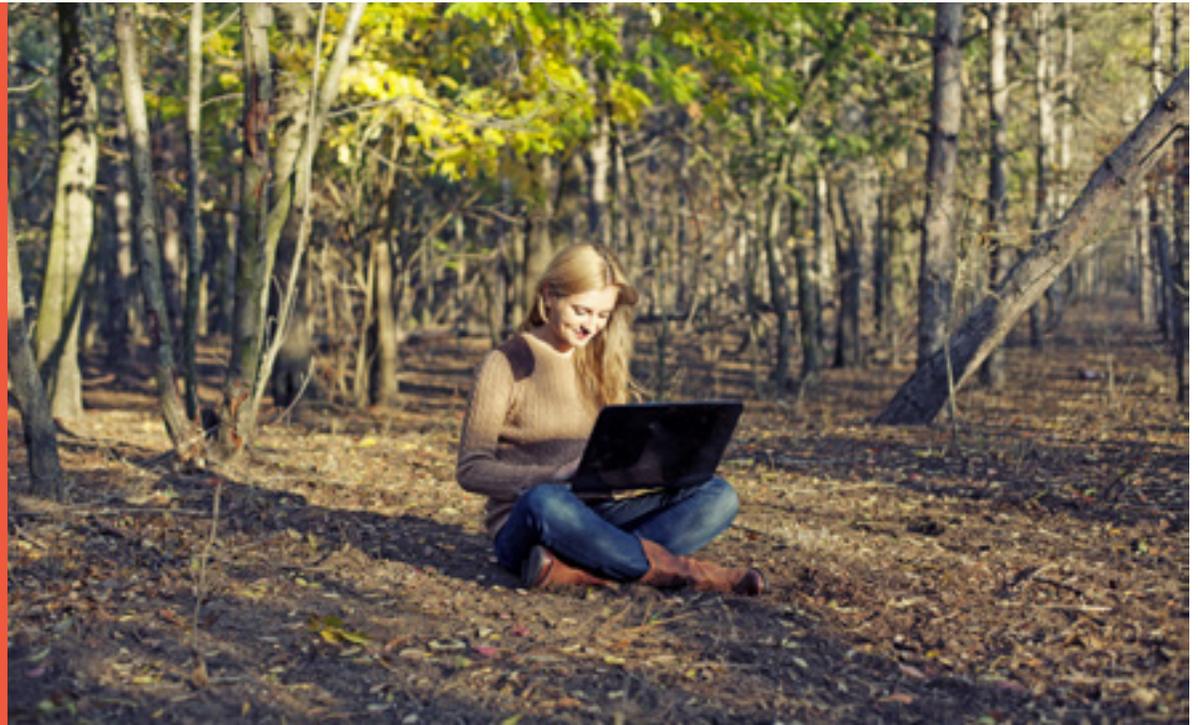
**Institution implementing the activity:** Network for Training

Entrepreneurship (NFTE) Belgium

**Website or link to project or institution:**

<http://www.nfte.be/index.php?id=home&L=2>

**Application/target audience of activity:** Students in secondary vocational education and vocational training



## Preconditions for success

- ▶ One of the aims of the training is to get students to think of creative 'out of the box' projects. To achieve this, teaching methods must be equally innovative and interactive. NFTE Belgium therefore works with a variety of methods including getting students to perform market research in their immediate environment, and Internet searches on the viability of their idea.
- ▶ Real-world experience and feedback is also crucial to success and engagement. The course includes a company visit and testimonials from business leaders. At the end of the course students present their business plans to an audience and business jury within a company.

## Impact of activity

These courses reach around 400 students a year, and there is a growth plan in place to increase this to 800 students by 2017.

Qualitative research highlights a number of successes:

- ▶ 45 % of total NFTE participants find a job, or start their own business
- ▶ 21 % of participants go on to do additional training
- ▶ 77 % of students feel ready to seek employment or start their own business
- ▶ General business knowledge rises from 20 % to 80 %
- ▶ There is an increase in self-confidence, team work, organisation, respect, punctuality and motivation.

CPD

OUTREACH STRATEGIES

TRAINING PACKAGE

BUSINESS PLANNING

BELGIUM

# Training teachers to deliver ‘practice firms’ within their school

**Bulgarian Centre of Training Firms**, part of the Ministry of Education, Youth and Science, offers a 3-day training course, delivered to 10–20 teachers in each school. It is around 30 % theoretical, and 70 % practical, involving activities including brain storming, group and team practice work, entrepreneurship simulations and discussions. The aim is to establish and manage a ‘practice firm’ in each school.

Practice firms are simulations of real companies, with all the documentation, systems, and procedures used in real business. They provide first-hand experience of setting-up a small company, trade and business for those students who are unable to get experience in a real enterprise. Students experience trade, how to run a sales department/office; organise personnel

functions; operate accounts and control stock and administrative systems. The dynamic, realistic environment of a ‘practice firm’ allows students to gain many positive outcomes: the application of theory to practice; team work and communication skills; planning skills; and an entrepreneurial mindset.

Overall, the in-service training course creates a team of teachers within a school who can deliver and support the teaching of entrepreneurship education. Each teacher has a different speciality, and will be aware of the legal procedures and practice for the creation and running of businesses. They also gain techniques for motivating school students to take part in the ‘practice firm’ course, and they also gain a certificate as practice firm trainers. Teachers can apply the new knowledge and skills to the school subjects they teach.

**Type of activity:** CPD providers’ outreach strategies

**Country of implementation:** Bulgaria

**Institution implementing the activity:** Bulgarian Centre of Training Firms

**Website or link to project or institution:** <http://www.buct.org/index.php?p=22>

**Main contact:** Dariya Mavrudieva

**Main contact email:** [info@buct.org](mailto:info@buct.org)

**Telephone:** +359 29632272

**Application/target audience of activity:** Teachers

**Level of education targeted:** CDP, secondary, higher and vocational education teachers



## Preconditions for success

- ▶ Stimulate take-up. The course is widely promoted within schools (both academic and vocational), as well as online, and in the annual meetings of teachers. Schools then send an application to the Bulgarian Centre of Training Firms in order to take part.
- ▶ Maximise partnership. Key to success is the cooperation between schools, governmental institutions and business. This is partly facilitated by the Bulgarian Training Firms Network, established in 2004. Membership includes practice firms; the Bulgarian Centre of Training Firms; business organisations; companies; NGOs and governmental institutions.
- ▶ Engage business partners. Companies provide expertise, consulting, monitoring and evaluation to the Bulgarian Centre of Training Firms, as well as directly taking part in teacher-training in schools.

## Impact of activity

This programme has many successful elements:

- ▶ Its outreach is extensive; for each school it contacts, it reaches between 10 and 20 teachers, and 500–1 500 students
- ▶ It is a sustainable programme — courses have been run every year since 1999
- ▶ It has helped to build an ‘entrepreneurial education’ mindset in many schools; forming interdisciplinary teacher-teams who guarantee the sustainability of entrepreneurship education teaching and a learning environment.

## Plans for development

- ▶ Delivering training for teachers, trained in the program, in new areas, for example foreign languages; ICT skills; team establishment and management. This will further enhance their competencies. The training are planned and provided in partnership with business organisations.
- ▶ Increase cooperation between teachers and real businesses; training teachers for consultancy, problem solving, check-ups and evaluation.

CPD

OUTREACH STRATEGIES

CERTIFICATION

COLLABORATION

BULGARIA

# JA-YE School teacher training activities

**Junior achievement young enterprise (JA-YE) Europe** is an NGO with 37 national members dedicated to education for entrepreneurship, skills for employability and financial literacy for students from primary school up to university. In the year 2011–2012, the network reached more than 3 million students with a wide range of programs. The European headquarters is in Brussels. JA-YE trained approximately 135 000 teachers from 70 000 schools in that academic year. One of the most popular programmes is the 'Company Programme', where students form a mini-corporation, under the guidance of a teacher and a volunteer business advisor. As well as offering formal and informal training opportunities for students, this also involves a range of in-service learning for teachers, covering four main areas:

- ▶ Confidence — developing personal qualities and attitudes such as:
  - ▶ The ability and willingness to take the initiative
  - ▶ Innovation and creativity
  - ▶ Willingness to take risks
- ▶ Competence — learning, knowledge and skills concerning business development and innovative processes
- ▶ Learning by doing — learn subjects and basic skills through the use of entrepreneurial working methods
- ▶ 'Cool' factor and motivation — involving the local community, parents, friends, media, trade fairs and competitions, as well as international activities

**Type of activity:** Outreach strategies of CPD providers

**Country of implementation:** International

**Institution implementing the activity:** Junior achievement young enterprise europe (JA-YE Europe)

**Website or link to project or institution:** <http://www.ja-ye.org>

**Main contact:** Jarle Tømmerbakke

**Main contact email:** [jarle@ja-ye.org](mailto:jarle@ja-ye.org)

**Application/target audience of activity:** Teachers and students aged 16–19 taking part in the JA-YE Company Programme

**Level of education targeted:** Teachers at VET Institutions and upper secondary schools



The programme cycle starts at the beginning of the school year. JA-YE's strategy is to approach the owner of the school first (e.g. the local municipality) and ask if they want their school to be involved; after this, they approach the head of the school with the same question. Then JA-YE starts basic teacher training; it takes teachers through the key concepts of the programme and establishes networking groups so participants are not left alone. This is important because there is often a lot of uncertainty/resistance to new methods; they face questions like 'will the kids learn as much with the new methods?' Students then follow the 1-year 'mini-company' cycle, developing a business idea, marketing strategy and budget, before participating in various local competitions.

### Preconditions for success

- ▶ The key to the success of the JA-YE programmes is the mix of formal and informal learning.
- ▶ On the formal side, opportunities are offered to engage in real, not simulated activity: there are 2–3 days of teacher training and continuing professional development, with additional online content and delivery; and, a competence assessment and validation through practical experience.
- ▶ On the informal side, teachers and students benefit from a network of participating schools; a coach from the business community for every class; 1–3 days of extra-curricular activities (competitions or innovation camps); and an alumni element.
- ▶ There is also a strong international dimension to many JA-YE activities, with collaboration across Europe — for example the annual European Company of the Year Competition; JA-YE Enterprise Without Borders; JA-YE Social Enterprise Programme and European Creativity and Innovation Challenges.
- ▶ Competition engages the community and motivates teachers. JA-YE sees competition as crucial to engaging with the local community and media. Judges of these competitions are typically from the business community, politicians and local/national education authority, which

help to get their support behind the project. Several awards are given out to mini-companies; teachers and schools are also awarded, and this kind of recognition often creates positive publicity both for the activities but also for the schools and the teachers.

### Impact of activity

JA-YE has conducted research on the impact of their activities among past participants, with many positive results. 90 % of the teachers will recommend this way of teaching to their colleagues. 'It makes the school more interesting and motivating' is a common statement from students. In addition we can see that this way of teaching creates entrepreneurs.

- ▶ Start-ups: An independent study among former participants, showed 50 % more start-ups among former students than in the control group. 12 % of those who have been part of the secondary school JA-YE Company Programme have established their own business by the age of 25, compared with 8 % of those who did not participate.
- ▶ Creates entrepreneurship confidence. 55 % of former company programme students claim to have the necessary skills and knowledge to establish their own business if the opportunity was there, compared with 41 % in the control group.
- ▶ Creates future leaders. 33 % of former JA-YE company programme students are in a leadership position today compared with 25 % in the control group.
- ▶ Several other independent studies and research support these findings.

CPD

OUTREACH STRATEGIES

AWARENESS STRATEGIES

INNOVATIVE TEACHING METHODS

PRACTICAL METHODS

EUROPE-WIDE

Useful links or resources:

JA-YE Enterprise without Borders®

JA-YE Social Enterprise Programme

European Creativity and Innovation Challenge

# ‘The Entrepreneurial Educator’ — 2-Day Seminar

‘The Entrepreneurial Educator’ is a 2-day seminar addressing issues of teacher professionalism and their role as agents of change in society. The seminar is interactive, and comprises examples of innovative practice, discussion and application to the delegate’s personal work context. The seminar itself is based on the premise that it is significantly easier for an educator to lead learners in contexts where the educators themselves have relevant expertise, and recognises that many educators have had, or believe they have had, limited experience of entrepreneurship. The seminar therefore supports teachers to recognise and understand how any real life expertise and experience can be brought into the entrepreneurship arena. Importantly, it also links the educators with others, working in the same area, opening opportunities for effective collaboration.

The seminar explores the concept of the Entrepreneurial Educator, comparing successful entrepreneurs with effective teachers. It highlights and explores, through dialogue and reflection, key aspects of teacher professionalism, professional identity and ways of engaging learners. These aspects include attitudes towards change, uncertainty, risk-taking and relationships.

The 2-day seminar explores five themes:

- ▶ the entrepreneurial educator
- ▶ learning and teaching for the 21st century
- ▶ what we know about effective learning
- ▶ involving learners in their learning
- ▶ strategies to empower entrepreneurial competence.

**Type of activity:** Ongoing support initiatives to CPD providers

**Country of implementation:** United Kingdom — Scotland

**Institution implementing the activity:** University of Aberdeen

**Website or link to project or institution:** <http://www.abdn.ac.uk/spe>

**Main contact:** Dr David McMurtry

**Main contact email:** [d.c.mcmurtry@abdn.ac.uk](mailto:d.c.mcmurtry@abdn.ac.uk)

**Telephone:** +44 1224274623

**Additional actors or partners involved:** the Scottish Programme for Entrepreneurship; the Croatian National Teacher Training Agency; Erciyes University, Kayseri, Turkey

**Application/target audience of activity:** Teachers, head teachers, student teachers, teacher educators, education authority staff, psychologists and pedagogists

**Level of education targeted:** Educators at all levels of education – pre-school, primary, secondary, further and higher



Participants explore entrepreneurial learning and teaching in contemporary contexts and consider examples of good practice. They also engage in 'Action Planning', using ideas learnt and explored from the themes above to create a development agenda to take forward one aspect of their practice.

Numerous pedagogical approaches are adopted to promote entrepreneurial attitudes and creativity, including:

- ▶ tutor-led presentations, using data from research and literature and examples of good practice using video
- ▶ extensive reflection, discussion, dialogue and interaction
- ▶ action planning, individually and in groups
- ▶ group presentations.

'The entrepreneurial educator' is currently offered by the four partners involved in delivering the project listed above, subject to availability. Anyone (from any European nation) who wishes to host the seminar should, in the first instance, contact Dr David McMurtry, University of Aberdeen. The institution requesting the seminar should be aware that they will need to meet the travel and accommodation costs of the presenters. In addition to the two-day seminar, there is also an online learning community, which allows participants to access and share materials and to interact before and after the seminar.

As well as being a developmental professional learning experience, the seminar is also a research activity. Data is gathered through a questionnaire about the participants' perspectives on the concept of the entrepreneurial educator and of their professional identity, particularly the extent to which they see themselves as having an entrepreneurial mindset.

## Impact of activity

This new programme has already been very successfully run in Zagreb, Croatia (June, 2012), Aberdeen, United Kingdom (September, 2012) and in Kayseri, Turkey (March, 2013). Evaluations of the seminars showed that participation had a significant impact on participants' self-efficacy, and can also inform practice and policy. Following the Kayseri event, papers and reports were published discussing the conceptual developments and the empirical data, highlighting the international comparisons.

Engagement with entrepreneurship and entrepreneurial activity has also had a positive impact upon students and their learning, across all subject areas. Educators, in considering their own role, deepen their understanding of their own impact on society. This provides the basis for significant professional development.

The team are happy to discuss the possibility of running in the seminar in partnership with educators from other nations and contexts.

CPD

ONGOING SUPPORT

AWARENESS RAISING

EXPERIENTIAL LEARNING

UNITED KINGDOM

# National Standard for Enterprise Education

The [National Standard for Enterprise Education](#) was designed by the Centre for Education and Industry at the University of Warwick. It provides a quality review process for recognising and celebrating good practice in the design and delivery of an entrepreneurship education curriculum. It is very much about teacher training, rather than student-focused activities.

The framework is organised into five elements, each of which describes and identifies quality processes. These involve:

- ▶ defining a vision of entrepreneurship education,
- ▶ conducting an entrepreneurship education audit,
- ▶ planning and managing entrepreneurship education,

- ▶ delivering an entrepreneurship education curriculum,
- ▶ assessing and evaluating entrepreneurship education.

Each element contains a list of requirements schools must meet, accompanied by a brief descriptive explanation of the type of documentation and evidence needed to be assessed for the National Standard.

To achieve the National Standard for Enterprise Education schools need to demonstrate that there is:

- ▶ A commitment to entrepreneurship education for all students.
- ▶ A vision for the future needs and development of the enterprise curriculum, to incorporate activity-based learning and student-centred methods.

**Type of activity:** Ongoing support initiatives to teachers in-service

**Country of implementation:** United Kingdom

**Institution implementing the activity:** Centre for Education and Industry

**Website or link to project or institution:** [http://www2.warwick.ac.uk/fac/](http://www2.warwick.ac.uk/fac/soc/cei/enterpriseeducation/casestudy)

[soc/cei/enterpriseeducation/casestudy](http://www2.warwick.ac.uk/fac/soc/cei/enterpriseeducation/casestudy)

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**Application/target audience of activity:** Teachers

**Level of education targeted:** Teachers in primary, secondary and special schools



- ▶ A clear view of how entrepreneurship education fits into the broader curriculum and development plan, as well as a commitment to, and understanding of, the concept from the leadership team and general staff.
- ▶ Regular evaluation and assessment of entrepreneurship education provision, particularly its impact on individual students' capability development.
- ▶ Evidence of specialist in-house or external continuing professional development undertaken by enterprise coordinators and school staff.

### Preconditions for success

- ▶ Free and accessible information. A key aspect of the standards is that they are published online in an 'Enterprise Village'; allowing teachers and institutions to access the materials easily and free of charge.
- ▶ Self-assessment and action planning are enabled by the online material. Clear strengths and weaknesses in a school's overall entrepreneurship education delivery can be identified and worked on.
- ▶ External accreditation is available.

### Impact of activity

- ▶ The requirement for specialised in-service training to be offered has stimulated both demand and supply of enterprise training for teachers, and the establishment of useful school enterprise networks.
- ▶ Staff working with the materials report that they welcome the structured approach and the opportunities to celebrate the best practice identified.
- ▶ Staff are often able to identify the 'hidden' entrepreneurship education which is taking place in their schools but has not been previously recognised.
- ▶ Teachers and their mentors value the provision of clear guidelines to support the provision of high quality entrepreneurship education. They also respond well to the flexibility built into the requirements which allows for local priorities to be addressed whilst still complying with the basic criteria.

CPD

ONGOING SUPPORT

EMBEDDED

STANDARDISATION

UNITED KINGDOM

Useful links or resources:

CEI website: <http://www2.warwick.ac.uk/fac/soc/cei/>;

Enterprise Village website: <http://www.enterprisevillage.org.uk/>

# Interpretation of the entrepreneurial concept in teaching curricula

The **Centre for Educational Research and Development (CERD)** is an agency of the Lebanese Government and has a key role in developing curricula. It has been developing approaches to integrate entrepreneurship into the country's education system. A pilot is introducing entrepreneurship content into curricula, in both general education and VET. Achieving this has taken several steps:

- ▶ Initially, CERD presented the case for the project to Ministers, in order to convince them to invest.

- ▶ Secondly, the pilot sites were selected (around 50 in total), and the Principals of these schools were invited to discuss the project.

- ▶ Lastly, CERD provided training to the teachers in the schools in order that they could begin delivering the initiative.

A range of resources were procured and developed to support delivery. These included: curriculum guidance, materials for students, and a manual for the teachers. All materials took an active learning approach, and began by teaching basic employability skills.

**Type of activity:** Ongoing support initiatives to teachers in-service

**Country of implementation:** Lebanon

**Institution implementing the activity:** Centre for Educational Research and Development (CERD)

**Website or link to project or institution:** <http://www.crdp.org/CRDP>

**Application/target audience of activity:** Teachers in general education and VET

**Level of education targeted:** Elementary schools



## Preconditions of success

- ▶ Wider impact means integration into the curriculum is essential. This project was seen as the first step in developing an 'Enterprise Society' in Lebanon; since it aimed to affect Lebanese society more broadly, key to its success was that entrepreneurship was integrated into the main curriculum, rather than merely being an extra-curricular activity.
- ▶ Engage all the key actors. Pilot projects were held to identify areas of strength and weakness. Results from them indicated that engagement at three levels (in the Ministry initially, then the school Principals, and lastly the teaching staff) was vital in ensuring the success of the pilots.
- ▶ Reduce duplication to maximise value for money. Lastly, overlaps between funders were prevented by each funder working on a different aspect of the programme.

CPD

SUPPORT INITIATIVES

AWARENESS RAISING

TEACHING MATERIALS

LEBANON

## Projecte Emprenedors (Entrepreneur Project)

Each term around 10 teachers from different schools that deliver an **Entrepreneurship Programme**, meet in the Education Department of Catalonia to discuss and share materials, experiences and ideas. These materials include assistance for teachers to guide students in projects which focus on creating an (imaginary) business, such as 'Starting a Business: Writing a Business Plan'. Lesson plans, teaching notes and student worksheets are provided, as is information on key elements of government legislation; useful links; videos on the subject; and examples of previous years' projects. Additionally, all the teachers share their experiences and

the results from promoting entrepreneurship within their schools; most are asked to prepare an assessment sheet to hand in, some present their work in a more creative way. For example, editing a video showing the results of presentations carried out by students as part of their final project.

The Department for Education also gave out contacts for local businesses, and discussed how they might be contacted within individual project timeframes. They also highlighted the usefulness of having successful entrepreneurs come and give a motivating speech at the start of projects in schools.

**Type of activity:** Ongoing support initiatives to teachers in-service

**Country of implementation:** Spain — Catalonia

**Institution implementing the activity:** Education Department of Catalonia

**Website or link to project or institution:** Website of the Education

Department of Catalonia: <http://www20.gencat.cat/portal/site/ensenyament>

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**Telephone:** +34 935516900-3835

**Application/target audience of activity:** Teachers who apply an entrepreneurship programme in their schools

**Level of education targeted:** CPD, teachers of secondary education



## Preconditions for success

- ▶ Entrepreneurial schools are quite a new concept in Catalonia, so the support of the Education Department is crucial.
- ▶ The activity is promoted through the Continuous Development of Teachers from the Education Department and is offered free on a pilot basis to some schools in Catalonia. The Education Department is the key in enabling teachers to share experiences and materials; particularly for those who are doing this for the first time. In addition, this year a new optional subject 'emprenedoria' (entrepreneurship) has been included in the 3rd year of compulsory secondary education. It is therefore particularly crucial that more teachers access this training, particularly economics teachers who will usually be responsible for this new subject. In addition, there is little existing material in schools, so the Education Departments' help and information is central to providing high quality information.
- ▶ The *Projecte Emprenedors* has now developed a 25-hour course to deal specifically with the new subject of Entrepreneurship, providing teachers with the tools and resources necessary to implement it.

CPD

SUPPORT INITIATIVES

COLLABORATION

TEACHING MATERIALS

SPAIN

Useful links or resources:

Link to some of the materials handed out: [http://phobos.xtec.cat/cirel/cirel/index.php?option=com\\_content&view=article&id=105&Itemid=74](http://phobos.xtec.cat/cirel/cirel/index.php?option=com_content&view=article&id=105&Itemid=74)

Link to the site of the Education Department with a handful of resources on Entrepreneurship: <http://www.xtec.cat/web/recursos/emprenedoria>

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