digital Teacherpreneur

STUDY ON PROFILES, TRAINING NEEDS AND CHARACTERISTICS OF THE TEACHER - ENTREPRENEUR (DIGITAL TEACHERPRENEUR) IN AUSTRIA, CZECH REPUBLIC, ITALY AND SPAIN

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Table of Contents:

0. ABOUT THE PROJECT AND THIS DOCUMENT.

Digital Entrepreneurship: Innovative Teacher Training (Digital Teacherpreneur) is a project funded by Erasmus Plus as a Strategic Partnership in the field of vocational training to support innovation. It aims at the development, transfer and implementation of innovative practices improving competences and skills of educators in the field of entrepreneurship, particularly in Digital Entrepreneurship.

Professionals in education and training who participate in initial and continuous professional development training schemes are the project's main target group/ audience. They should be able to teach future digital entrepreneurs, entrepreneurs who use digital tools to fulfill most of their work, use technology like mobile phones, tablets, mobile apps and other software to perform their job.

The Digital Teacherpreneur project wants to help create real new learning facilitators.

About this document (Intellectual Output 1 – IO1):

This document is based on a study aiming at the definition of a professional profile, the profile of the "Digital Teacher-Entrepreneur" and training needs during his/ her career. It identifies key characteristics of an efficient entrepreneurship learning facilitator.
The study has been conducted with a dual perspective:

- The definition of a profile of the entrepreneurship teachers, thus far, their training needs and the training resources put at their disposal (done as desk research);
- VET professionals, as well as entrepreneurs in digital focused companies, have been invited to participate in a short interview helping us find key learning gaps and needs as basis for the development of teaching/ learning material (in our field survey).

The aim has been to better know about the learning needs of these innovative teachers regarding e-tools and implementation also in the business world. Valuable input has come from experienced teachers, business representatives (entrepreneurs applying new technology or offering new e-services or chamber representatives aware of the current respective needs), ICT experts and policy stakeholders.

The present document offers a general vision on this matter, which has been research in more detail in National Reports prepared for Austria, Czech Republic, Italy and Spain.

1. INTRODUCTION: THE ROLE OF EDUCATION AND TRAINING AS DRIVER OF DIGITAL ENTREPRENEURSHIP.

The importance of entrepreneurship in school curricula (and in particular in the VET system) has been widely recognized for the last decades and a lot of developments have taken place in the EU at legislative and regulatory levels, but also in the didactical and methodological spheres.

After decades of work, the professional figure of the entrepreneurship teacher has been included in the political and educational discourses in all EU countries, although with different degrees and ways of implementation in the national educational systems.

The analysis carried out within this project shows that, with regard to the integration of entrepreneurship education into teacher training, many EU countries are still at an early stage. According to the recommendations issued by the central authorities, the integration of entrepreneurship education into the curricula of initial teacher education as a compulsory subject for all future teachers can only be found in Estonia. Almost half of the countries/regions, however, give decision-making autonomy to institutions dealing with initial teacher training in this respect and this could lead to a slightly distorted picture. The EU countries/regions in the phase of strategy development, however, recognize the central role of teachers in the implementation of their strategy and have started to organize ongoing professional development activities and to produce respective teaching material.

In particular, continuing professional development activities are open to all school teachers in 15 EU countries/regions. The most widespread type of support offered to teachers by the central authorities is the provision of or the financing of teaching materials. In only two EU countries (i.e. in Denmark and Spain) the higher-level authorities provide (or promote) all four types of support as defined in this report which is: teaching materials, guidelines, competence centers and teacher networks. However, private actors also play an important role in some countries/regions. The consolidation phase of the strategy implies that the offer of entrepreneurship education training has been extended to all teachers concerned through initial teacher training and continuous professional development and also that teachers receive support to implement this subject in the curriculum through guidelines, a competence center or a network of teachers. Currently, this phase has not been reached by all the countries/regions in the EU. Activities for teachers therefore seem to be the least advanced area of entrepreneurship education development, as none of the EU countries/regions provides initial teacher training and continuing professional development to all teachers or offers a different range of different types of aids.

Today, when we still do not have a well-established European "Teacherpreneur" profile within our schools, a new professional figure comes into play.

A common shared understanding about the huge potential of digital technology to power growth and create job collides with the European reality, where 41% of enterprises are not-digital and only 2% are making profit of digital opportunities.

In response to this situation, the Commission has developed a policy framework to describe the vision and key priority areas for policy intervention[1].

The framework is structured along five pillars, each describing key factors and actions influencing digital entrepreneurship. Furthermore, the European Commission is committed to working toward the deployment and implementation of this 5-pillars plan (ibidem):

ENABLING DIGITAL ENTREPRENEURSHIP

Digital knowledge base and ICT market	Digital business environment	Access to finance	Digital skills and e-leadership	Entrepreneurial culture
Enhancing digital innovation, commercialization and the ICT sector	*Strengthening digital infrastructure, the regulatory framework and improving ease of doing business*	*Facilitating access to finance and enhancing digital investments*	*Fostering e-leadership skills through education and training*	*Creating a supportive entrepreneurial culture*
▸ Public and/or private sector support the creation of new companies and foster the development of existing ones that embrace digital ▸ Knowledge diffusion to enhance digital innovation is encouraged. ▸ ICT sector acts as an engine for diffusion and commercialization of new services/ideas.	▸ A clear and supportive regulatory environment makes doing digital business simple, market entry is facilitated and there is a an active and dynamic supply and demand of digital technologies ▸ Access to and trust in digital markets is heightened, as a result of an improved ICT infrastructure	▸ Enhanced access to finance is available, targeted at the creation, survival and growth of digital entrepreneurs ▸ Traditional forms of lending are complemented by innovative mechanisms targeted at enhancing digital investments ▸ Fiscal and tax frameworks are supportive and help to enable all business to embrace digital technologies	▸ A supportive education system exploits the new opportunities arising from ICT development, so individuals have the skills and the knowledge to improve business efficiency and develop new business models powered by digital ▸ Entrepreneurs and business leaders are more e-competent and able to enhance growth and internationalization	▸ The entrepreneurial culture is more supportive and embraces digital entrepreneurs. They are fully integrated in this context and their image and role in society are both improved and emphasized.

According to this Policy Framework, education and, in particular, the VET system, has to play a key role in preparing young people to become digital entrepreneurs, as well as in fueling a digital entrepreneurial culture.

But, digital entrepreneurship is unlike traditional entrepreneurship.

Digital entrepreneurship implies new ways of finding costumers, designing and offering products/services, generating revenue and reducing costs, applying new opportunities to collaborate, bringing new sources of opportunity, risks, as well as competitive advantage.

[1] **Fuellin digital entrepreneurship in Europe. European Commission.**

Therefore, in terms of education, digital entrepreneurship poses new challenges to train a new generation of entrepreneurs: neither the current didactical practices nor the teaching tools match 100% with the characteristics of digital entrepreneurship; case studies, simulation and business plans are not enough.

This is why our project is working in defining what is new in digital entrepreneurship and what knowledge, skills, competences should teachers have, to offer a European profile of the "digital entrepreneurship teacher".

A number of questions have been raised by organizations and stakeholders regarding who and how "to teach" digital and not digital entrepreneurship:

- Do we consider entrepreneurship as transversal competences for life (including e.g. creativity, critical thinking, personal autonomy, team work, motivation, efficacy, perseverance, self-consciousness …) or as a specific competence you need to create innovative and successful business (including social and green, but always business)? Are the teacher profile and his training needs different in each case?
- What are the common characteristics of a "teacherpreneur" and a "digital teacherpreneur"? To what extent are they different? Differences may be related to
  - ✓ Knowledge?
  - ✓ Skills and competences?
  - ✓ Methods and tools?
- How much should a "digital teacherpreneur" know about digital technologies? Is s/he a technologist, an engineer? Is it necessary to offer him/ her any technological training?
- Digital technology is changing rapidly; what impact does this fact have on the "digital teacherpreneur's" training needs?
- Business mechanisms are different in digital entrepreneurship, but are the basic entrepreneurship competences also different? Namely, in terms of learning outputs, do students have to develop new competences or merely new knowledge and technical skills?
- And what about the teaching methods and tools? Do the expected learning outputs in digital entrepreneurship require teaching approaches and instruments other than those existing for traditional entrepreneurship?

During the discussions in meetings and focus groups to this project, a number of assumptions have emerged to be further explored:

A "digital teacherpreneur" doesn't teach about technology, but s/he:

- ✓ guides students/ learners to explore technologies and to identify the ones which may be a starting point for a business idea;

- ✓ helps students/ learners to define new or alternative uses and applications of existing digital technologies to solve problems.

This means that the expected learning output is not the knowledge about current digital technology, but the ability of exploring current and future trends and technologies to identify business opportunities.

This assumption points us to the idea that Problem Based Learning (PBL) and Learning-by-doing are probably some of the best teaching approaches in Digital Entrepreneurship. In fact, PBL is the best way to help students/ learners to identify real problems/opportunities, explore practical solutions and translate them into feasible entrepreneurship ideas.

Besides exploring technologies and detecting business opportunities, it seems it is the capacity to collaborate and network which has become more important than ever. Thus, the competences and skills linked to cooperation become key and they should be strategic learning outputs in digital entrepreneurship.

With these assumptions in mind, this document, the "Study on profiles, training needs and characteristics of the teacher-entrepreneur (Digital Teacherpreneur)" describes how traditional entrepreneurship teaching has been integrated so far in the educational systems of the project participating countries (i.e. Austria, Czech Republic, Italy and Spain) and what the professional profiles and training resources there are in this field. The study presents the results of the aforementioned field survey on entrepreneurship teaching in the digital economy, with a suggested profile (key characteristics / skills and competences) of an efficient digital teacher-entrepreneur.

Finally, in depth studies for each of the participating country are available complementary to this document.

2. ENTREPRENEURSHIP EDUCATION TODAY: PROFESSIONAL PROFILE AND TRAINING RESOURCES FOR ENTREPRENEURSHIP TEACHERS.

Despite years of European collaboration in this field, the status of entrepreneurship education and entrepreneurship teachers are actually different at national level in the EU.

The principles, definitions and frameworks set out in the main European common documents[2] have been widely recognized and agreed by all participant countries. However, the implementation of such issues is unequal and it is fully embedded only in the academic and political discourse. The cases of Austria, Czech Republic, Italy and Spain are described below, highlighting some of the interesting practices found. For more detailed information, please see the respective detailed National Reports supporting this document.

2.1. Entrepreneurship teachers in the Austrian education system: Professional profile and training resources.

As in most European countries, it is basically seen as the responsibility of the individual teacher in Austria, who decides largely autonomously in which areas and to what extent s/he wishes to expand skills or competences – including digital and/ or entrepreneurial skills.

Digital skills are included in individual school subjects; entrepreneurial competences though are – in most cases - embedded in different subjects or projects for under graduates. When it comes to teaching the didactic professionals, teaching at all types of schools, continuing vocational training is essentially offered or organized by universities of teacher education, and to a lesser extent, although with increasing tendency, by other universities and partly by private training organizations; latter are particularly addressing the professionals working in the non-formal education.

Regarding digital skills, the awareness has been raised lately by the Pact for Digital Literacy, an association of industry, educational institutions and the public administration (Federal Ministry for Digitalization and Business Location - BMDW) aiming at developing digital basic skills in the use of mobile services. On the basis of the European DigComp 2.1 reference framework, a

[2] Entrepreneurship Education: Enabling Teachers as a Critical Success Factor."A report on Teacher education and Training to prepare teachers for the challenge of entrepreneurship education." November 2011
Entrepreneurship Education: A Guide for Educators.2013

digital competence model "DigComp 2.2 AT" was developed for Austria on behalf of the BMDW.

Also, the Public Employment Service Austria (AMS) set up its own focus on digitization as part of the "Standing Committee for New Skills" project series: "New Digital Skills", in 2019, applying lessons learnt also in the training services to unemployed where suitable. The so called ECDL (European Computer Driving License) certificate has been one of the training certificates supported by them, e.g. similarly, for entrepreneurship, the EBCDL (the European Business Competence Driving License) has become widely known.

To strengthen the entrepreneurial spirit, the Federal Ministry of Education implemented e.g. the E.E.SI Impulse Centre (EESI-Impulszentrum[3]) in 2006. The impulse center shall, together with EESI-multipliers, foster entrepreneurship training and a positive attitude towards entrepreneurship among pupils and teachers in secondary, VET, business schools and colleges in the nine Austrian provinces. Since that – and beyond - for many years secondary schools have e.g. implemented “students’ companies”, cooperations with the business world and similar initiatives.

In order to assure and improve the quality of entrepreneurship education, a set of criteria for an “entrepreneurship school” were developed and a Certificate for Entrepreneurship Schools (“ONR 42001”) – at basic and advanced level - has been awarded since 2011/2012 confirming an awarded school has a certain standard in the organization and the delivery of entrepreneurship education in the sense of having embedded it in a holistic, targeted manner in the school life. It is not only the learning and teaching which are planned for and designed to be entrepreneurial, but three areas have to be attained – some elements in them are mandatory, some facultative:

- Entrepreneurship activities at the school (entrepreneurship day, company visit, extra-curricular activities…);
- Entrepreneurship basics for teachers working at the school (basic and advances in-house trainings at the school, attending relevant seminars, setting up-teachers teams;
- An organizational framework for entrepreneurship education at school level (anchoring entrepreneurship education in the school profile, documentation of entrepreneurship activities, coordination point for entrepreneurship education in the school).

Extensive documents are available for teachers to implement entrepreneurship education in their lessons (e.g. the books from the entrepreneurship series “The Entrepreneur”), as well as seminars on entrepreneurship or in-school training through a series of workshops.

[3] https://www.eesi-impulszentrum.at/ueber-eesi/

Another interesting initiative is, e.g. the *Youth Start Entrepreneurial Challenges* project which is a European pilot project in which education ministries from Austria, Luxembourg, Portugal and Slovenia work together to promote the key competences of young people through the use of a practice-oriented, student-centered teaching program on entrepreneurship in the hope to help increase their chances on the job market and broaden their life prospects.

A very interesting tool regarding entrepreneurship is the *Kompetenzkompass* (Competences Compass) for teachers detailing networking, implementation, personal and social competences (source: Bundesministerium Bildung, WIssenschaft und Forschung, Österreich):

Another good practice can be found in the ENSI -Environment and School Initiatives, which is an international network that has supported educational development, environmental understanding, active approaches to teaching and learning through research and the exchange of experiences internationally since 1986 aiming at promoting the insight into learning for sustainable development, environmental studies, active forms of learning and teaching, as well as education for citizenship.

Finally, the *Arbeitsgemeinschaft Wirtschaft und Sch*ule – AWS (Working Group Economy and School) - provides numerous learning tools, media and documents for teachers at the upper secondary education level in order to communicate information and knowledge about economics, the national economy and entrepreneurship.

In general, it can be summarized for Austria that:

- There is no formal education to become an entrepreneur; school curricula include general skills employees are expected to bring in as entrepreneurial skills when entering companies;
- Digital skills are taught increasingly from elementary school on; in some schools, there are also so called “laptop – classes” to bring new technology to young learners.

2.2. Entrepreneurship teachers in the Czech education system: Professional profile and training resources.

The Czech innovation strategy highlights the importance of teacher training to boost entrepreneurship education as key element for a sustainable development. This recognizes the primary role which teachers play in the delivery of entrepreneurship education and the significant focus that is placed on their training and support.

Likewise, there is abundant specialized literature on the "entrepreneurship teachers", their importance and appeals to meet their needs in terms of resources, institutional support and training.

In 2017, an article published in Acta Educationis Generalis4 proposed the following profile: "A [*entrepreneurship*] teacher is a mediator, a facilitator who is providing assistance and guidance. Teachersare managing the activity of the students, they are just co-ordinators, facilitators, coaches, guiding helpers. They give feedback and correct pupils. Teachers should be innovative, dynamic, communicative and critical, should explore different ways of teaching by experience and simulations in order to develop critical thinking, reflection but also creativity and curiosity for learning. The teacher as a tutor explains to the pupils the real economy process and create situations like in real life".

The article also specifies the appropriate teaching methods and pupils' activities which the entrepreneurship teachers have to master:

> *"The teachers use attractive, non-traditional and active teaching methods and effective strategies (simulations, role play, brainstorming, creative writing, graphics, storytelling, self-regulated learning, enquiry, experiment). For support of pupils, they also need career counselling for pupils, help in making decisions about profession, tutoring, mentoring, coaching, support and supervision. For the development of entrepreneurial competence, financial literacy and soft skills, modern technologies and learning tools (ICT, social networks, edu-clips, MOOC, see www.l33n.eu) are used. Teachers try to find and use the institutional memory and knowledge and experience of excellent top management, progressive leaders and seniors. Inspiring personalities could also be used in the narrative autobiographies."*

Despite this general awareness, the reality of the situation in the Czech Republic is, in short:

[4] Education for Entrepreneurship – A Challenge for SchoolPractice. Alena Jůvová – Tomáš Čech – Ondřej Duda. Acta Educationis Generalis volume 7, 2017, issue 3

- entrepreneurial competences are not taught at schools as specific subject, but embedded in a number of compulsory subjects (civic and social sciences) as expected learning outcomes;
- financial literacy as knowledge is included in the school curricula at primary and secondary level as part of social sciences;
- companies' start up and business management are taught in high business schools and through projects and programs funded with ESF (European Social Funds) and in collaboration with private organizations and NGOs.

In this scenario the "entrepreneurship teacher" as a professional profile is not represented in the education system and, therefore, there is not a consensual definition of the profile, nor a national plan for entrepreneurship teachers' education.

Teachers of civic and social subjects are generally responsible for financial literacy and entrepreneurship competences, as well as to organize the participation in collaboration activities between the school and the Centre for Practice Enterprises or Junior Achievement.

Notwithstanding, as more schools offer/participate in entrepreneurship teaching activities, a number of courses and seminars have been developed in the last years, along with manuals and other didactical tools (in most cases supported by the ESF).

Some of the projects implemented are:

Within the system of *Further Education of Pedagogical Workers*' courses are available for all teachers but they are limited to financial literacy and do not cover entrepreneurial skills in general. Higher education institutes are autonomous and can choose whether to include entrepreneurship education in ITE (initial teachers' education) study programs or not.

In August 2014, the Further Education Fund (FDV), an organization of the Ministry of Labour and Social Affairs, launched the project 'Internships in Companies – Education Practice 2' ("*Stáže ve firmách –vzdělávánípraxí*") that ended in September 2015. One of the results of this project is the National Catalogue of Internships, an online platform with free access which aims at offering internship opportunities to potential candidates.

Entrepreneurship also might be taught as part of the requalification process conducted by the Employment Office by relevant jobseekers .Entrepreneurship courses are mostly provided by private entities as paid courses or workshops.

The General School Methodological portal (RVP.cz)

The aim of the *Methodology II* project was to increase teaching quality by providing teachers with a systematic support in the area of teaching methodology, the development of learning

communities and effective self-improvement support through their ongoing training. As a vehicle for these activities, the RVP.cz Internet portal was created. Since its establishment, the portal has earned a good reputation within the teaching community and has been successful in meeting its goals even after the completion of the project in 2012.Until 2009, there was no respected website in the Czech Republic where teachers would “gather” and share their experiences, know-how, motivation. By 2016, there were 285 support materials for entrepreneurship education or education about entrepreneurship available on the RVP.cz portal created by the teachers themselves under the Creative Commons license which help stipulate that the work can be freely distributed and modified and used as a basis to create derivative work. It offers the so-called DUM (digital teaching materials, i.e. basic teaching aids like theoretical contributions, teaching ideas, learning materials, etc.) which support the introduction of school educational programs in all types of schools; furthermore a community section (Wiki, Forums, Digifolio, Blogs).

The *Digifolio* is a module intended for the users themselves: Users can create their own digital portfolios which offer them the opportunity to track their own professional development and to plan their future goals, as well as some self-evaluation. The educational part of the Methodological Portal (e-learning module) is populated by tutored e-learning courses, webinars, which follow the published materials, thus contributing to further education of participating teachers.

The Centre for Practice Enterprises (Centrum fiktivních firem)

This is an activity of the National Institute of Education and a member of the international network EUROPEN – Pen International gathering practice enterprises from all over the world.It offers students in upper secondary vocational education the opportunity to manage a 'practice enterprise', set up by them under the supervision of their teachers, in order to develop their entrepreneurial skills. The Centre coordinates activities carried out by a network of practice enterprises active in the Czech Republic and provides support and consultation services to them.

Cooperation school-companies

Schools and employers cooperate at institutional level. The quality and the form of this cooperation depend on the attitudes of the people who are responsible for the individual cooperation. Generally, a cooperation of school-companies is oriented more towards employability than entrepreneurship.

There are different instruments strengthening the mutual institutional cooperation. On regional level the following measures exist: employment pacts, incentives for pupils, centers serving as a meeting point for both schools and enterprises. The state supports, in a more

systematic way, the cooperation by setting new legislation aimed at the possibility to apply tax reductions for involved employers.

The cooperation between secondary schools and employers was supported by the national project *Pospolu* (Together, 2012-2015) whose main goal was to suggest legislative and system changes that could enhance effective and easier cooperation between the concerned parties. Based on the discussions with the social partners, a conceptual study with recommendations was developed which was pilot tested by a network of 38 schools and 115 employers, enterprises. The Pospolu project also prepared a set of useful instruments that help enable easier planning, implementation and evaluation of co-operations between particularly secondary schools and employers such as a series of publications, material dedicated specifically for the employer on how to start the cooperation, templates and online support, a course for instructors, a list of ECVET units with Learning Outcomes for internships, evaluation questionnaires and email addresses to employer's umbrella institutions.

Teachers Training in Junior Achievement Cz.

JA Cz offers (by payment) entrepreneurship teacher training accredited by the Ministry of Education, Youth and Sports. In 2020, there are three types of accredited DVPP training planned to support the program development:

- Entrepreneurship education at primary school, aimed at familiarizing with the courses JA My First Money, JA Business Alphabet and JA Professional Orientation.
- Education for entrepreneurship at secondary school, focused on the familiarization with the teaching program JA Student Company and its implementation in school education;
- Education for entrepreneurship at secondary school – Advanced, offering five thematic blocks focusing on professional topics in the field of entrepreneurship. Its aim is to provide teachers with practical knowledge gained in companies across disciplines and sizes of companies and to such help them in the management of "student companies".

2.3. Entrepreneurship teachers in the Italian education system: Professional profile and training resources.

The European project “Marie Curie EntreLab”, led by the University of Helsinki in partnership with the University Ca' Foscari of Venice, was realized at “Carlo d'Arco” technical high school in Mantua where the results of the search carried out between 2012 and 2014 were “picked up” in the book “La formazione all’impresa nella formazione tecnica e professionale” (Traning to the enterprise in the technical and professional training). The research doctorate became a project sustained by the Province of Mantova in 2014 and, subsequently, it has been transformed into a laboratory of validation of the pupils’ competences. The activity wasset into this context as a laboratory for the continuing learning of teachers aiming at providing the necessary tools that help show the entrepreneurship as the ability to put ideas into action.

The screening of footage and interviews, picked up by the involved researcher, the sharing of documents and the following debates have reached the final purpose to make teachers’ (more) entrepreneurial in teaching, giving them the possibility to put a model of entrepreneurship training into practice according to the needs of their own classes.

In the Italian framework of the organizations aimed to the economic-entrepreneurial education among the school institutions, the presence of JA Italia, partner of JA Europe, European operational branch of JA Worldwide, the amplest no-profit organization in this sector, is underlined. Founded in Italy in 2002, Junior Achievement constitutes an example par excellence of a “facilitator to the entrepreneurial education”, since it provides thanks to its net of volunteers, professionals, institutions and foundations, teachers and experts the suitable tools to lead young people not only in a path of school career but also of entrepreneurial realization.

JA Italia offers an ample fan of activities and didactic initiatives, suitable to the different age from 6 to 24 years, to valorize the attitudes of young people and to stimulate the sense of initiative, the spirit of innovation, the courage and the sense of responsibility, essential elements as in the entrepreneurial choices as in the choices of daily life. The attention is drawn to young students but also to teachers who want to teach entrepreneurship at school. For this reason, JA Italia organizes a training session with the title "Teacherpreneur: inspirations to teach entrepreneurship" in the context of the European plan The Entrepreneurial School (TES). This laboratory has been planned for any teacher who wants to introduce the concept of entrepreneurship in his/her class, using a new didactic methodology and experimenting with new formative devices.

The main purposes are the acquisition of the fundamental principles of entrepreneurial education, of the tools suitable to develop paths of entrepreneurial education in class, a continuous professional updating, the possibility to develop an Italian and European network of teachers interested in the entrepreneurial education and, finally, the encouragement to create a partnership between schools and enterprises/institutions, to bring the students to "the world of work".

The "Teacherpreneur" laboratory is organized by HUB schools in Italy and expert teachers and it can be developed wherever there is a space available for a number of 20 to 80 people. The course lasts six hours. It is divided in a plenary session and parallel workshops: the first part is dedicated to the popularization of main information about entrepreneurial education (national and European policies, key competencies, Italian and European good practices, competencies certification), while the second part is planned as practical activities in groups of 8 to 10 people on creativeness, decision making, business model, problem-solving, ICT, etc.

The above-mentioned activities have been planned for the demands of teachers who are interested in introducing the sense of entrepreneurship in their classes, in any subjects.

2.4. Entrepreneurship Teachers in the Spanish education system: Professional Profile and Training Resources.

Entrepreneurship is getting closer to educational contexts and there are more and more studies and research carried out about entrepreneurship and its elements within the Spanish education system. Increasingly, the value that would add to entrepreneurship training in entrepreneurship can be observed in the different states and regional regulations at the Spanish level.

In fact, this highlights the importance of promoting teacher training in innovation through analysis and reflection of teaching practice; the training of professionals with social responsibility, critical but proactive and creative in the face of changes; training in excellence through the promotion of projects for educational innovation; and, training in collaborative processes between different professionals (peer training, networking).

Likewise, a competency profile is advocated that allows teachers to assume in optimal conditions the responsibilities of their different functions and tasks. Among them we highlight teaching the procedures and attitudes so that students learn to undertake; research and innovate teaching-learning processes; cooperate with other teachers and educational agents and participate in the management and continuous improvement of the educational centre; develop an ethical vision about their profession and their social commitment as an innovative agent; and, solve problems and conflicts.

Characteristics of the teacherpreneur or Entrepreneur Teacher in Spain

The European Project CIP-Project *Young Entrepreneurship Developing in Action* highlights knowledge about entrepreneurship and entrepreneurship education, open reflective attitude towards entrepreneurship which teachers should develop in the classroom and should, throughout their professional development, encompass the following competences:

- ***Entrepreneurship competences*:** to identify and take advantage of opportunities; network; organize and plan activities; devise a plan; take decisions; make use of the experience; try to create value and quality; take responsibility for an activity; take risks; create new ideas; act in an innovative way; turn ideas into actions; engage in an activity; make efforts to achieve the objectives of an activity; present ideas and products and support the development of project management skills.

- ***Personal competences*:** to manage conflicts; cooperate in teams; communicate with others; give advice; give support in the development of the personal learning process; reflect on your own role as a teacher; identify their strengths and abilities; handle errors

constructively; generate ideas to solve problems; understand and value other ideas; argue for or against ideas or products; help to reach consensus; develop a cultural and social awareness; raise and discuss ethical issues; and act and react flexibly.

- ***Didactic competences***: to define competences for entrepreneurship education; plan learning environments for entrepreneurship education; organize learning activities within the framework of entrepreneurship education; integrate entrepreneurship education in the subjects to be taught; evaluate learning activities; reflect on teaching activities; improve teaching activities; change mentalities; motivate students; encourage ideas / talents and interests of students; create continuous support for the development of entrepreneurship competition; promote student creativity; facilitate and guide the work of students; optimize the use of resources; diagnose student skills; and configure inclusive learning environments.

The adoption of competency-based learning requires a change in the teacher's role since s/he transforms from a “mere” provider or transmitter of knowledge to a “learning facilitator”. We refer to a kind of mentor and coach who guides students' learning processes not only individually but also as a member of a learning community. In this context, the teacher is the one who challenges the student to propose problematic situations that admit more than one solution and to use evaluation techniques different from the traditional written exams.

The characteristics of a teacherpreneur matches with the ones that are considered as characteristic of an entrepreneur, that is: the need for achievement, independence, the focus of internal control, the perception that the results are produced by one's own actions, self-confidence, creativity and initiative; personal autonomy, leadership, innovation and entrepreneurial skills – which were, with the values of the entrepreneurial spirit considered indispensable and proposed by the Directorate General for Small and Medium Policy Company (2003).

Educators’ support in entrepreneurship education

The report *Entrepreneurship Education* in the Spanish education system (2015[5]) presents a detailed account of measures related to basic training and the ongoing training of teachers with a list of courses addressed to teachers. These include awareness-raising events, online follow-up of implementation processes within the classroom, guidelines for the implementation of education for entrepreneurship, development of teaching materials for implementation, teacher networks for the exchange of ideas and good practice in education for entrepreneurship or support from the education centers.

[5] Entrepreneurship education in the Spanish education system. Year 2015. REDIE

The importance of training teachers can be found in various official documents, the main ones being: entrepreneurship strategies, regional plans for on-going teacher training and official calls for entrepreneurship education programs.

Initial teacher training is the responsibility of the University teacher training faculties that possess a high degree of autonomy for designing these programs. Therefore, the development of certain skills and attitudes associated with the entrepreneurial competency are addressed in a transversal manner, although specific subjects on entrepreneurship education do not exist within the different initial teacher training courses.

However, the study identifies some promising initiatives that seem to indicate that a change in tendency is underway (e.g. the 'TALOS' program for the development of entrepreneurial initiative in the Faculty of Education Sciences, of Seville University, Andalusia).

Training activities offered, extend significantly within on-going teacher training for which the autonomous communities are responsible. Annual training plans provide a wide variety of courses, seminars and workshops related to entrepreneurship education. These training activities are brought together to form five main course categories:

- Courses related to business creation and management, with Vocational Education Training (e.g. Generation of Business Models Course, Community of Madrid).
- Courses orientated towards the implementation in the classroom of specific Entrepreneurial Education programs aimed at all teacher levels (e.g. Learning to be Entrepreneurial Course, Aragon).
- Courses that address the development of transversal entrepreneurial competency, (e.g. Course on The Promotion of Entrepreneurial Culture in the Classroom. Murcia).
- Courses on methodologies that are associated with the development of entrepreneurial competency (e.g. On-line training courses from the National Institute of Educational Technologies and Teacher Training).
- Courses for the design of entrepreneurial projects led by teachers (e.g. the program "Train the entrepreneurial talent" of the Princess of Girona Foundation).

A good part of the aforementioned are accredited as training activities, but they are of voluntary nature. Teacher training is not always ad hoc, it is relatively frequent that it forms part of broader support schemes, where other support measures are included, such as seminars and awareness raising events.

These schemes are usually coordinated by departments or agencies which form part of the organizational chart of the autonomous educational administration, although it is quite normal to establish collaboration agreements with outside entities to carry out part or all of such actions.

There are didactic materials to help teachers implement entrepreneurship education. At state level, the National Centre for Educational Innovation and Research fosters, in collaboration with other agencies and institutions, the development of materials to help teachers implement entrepreneurship education.

Likewise, practically all the publishers have printed text books and didactic guides for specific entrepreneurship subjects included in the curricula (e.g. “Entrepreneurial Business and Initiative” in Vocational Education Training). In the event of initiatives not being included within the curricula, it is common practice for the same companies or entities, which design the program, to provide teachers with a series of specific didactic resources.

Eight autonomous communities have online entrepreneurial education websites that bring together a more or less broad range of programs, tools and news related to the promotion of entrepreneurial culture in the classroom.

Teachers and educational institutions are taking on an increasingly active role in the exchanging of ideas and good practice in entrepreneurship education, as shown on websites coordinated at regional level (e.g. Extremadura’s Entrepreneurial Schools Website) and at state level (e.g. Community of Entrepreneurial Teachers).

Moreover, certain initiatives are being put into operation, especially in Vocational Education Training. They are committed to addressing entrepreneurship from a core perspective through the integration into the strategic documents of the center, the sensitization and training of management teams, the creating of an entrepreneurship coordinator and the collaboration with entrepreneurs, businesses and surrounding institutions (e.g. Investigation Project “Entrepreneurship Centre, Basque Country).

3. ENTREPRENEURSHIP TEACHERS IN THE DIGITAL ECONOMY: MAIN FINDINGS OF OUR FIELD SURVEY.

According to the European Commission, “teacherpreneurs” are teachers who have a passion for teaching, who are a source of inspiration, who have an open mind and are self-confident, who are flexible and, at the same time, responsible, but are also people who dare to occasionally break the pre-established rules. These are people who know how to listen, take advantage and sell new ideas, work with students (always directing their work to action). They are great team players with an important and extensive network of professional contacts (networking). They do not close in their classrooms but open it to the outside and include experts in their daily work in the classrooms, focusing the learning process on real-life experiences.

Likewise, as good professionals, they usually follow a work plan (with their corresponding schedules). They are flexible and adaptable people, and advocate interdisciplinary learning, which is based on Project Based Learning and in which the textbook is usually replaced by materials and resources that they themselves design and / or are responsible for. They are teachers who place emphasis on the processes and interactions that take place between people who belong to a group, and are aware that in their classes, there is room for diversity (of opinions, answers, solutions) and for reflection on the learning process. In short, a “teacherpreneur” is more than a person who teaches lesson masterfully; s/he becomes a companion, a guide, a person who focuses on the learning processes of each student/ learner and the development of his/her skills.

For this, it is considered necessary that teacher training be supported by the implementation of innovation in centres, and in cooperation, peer interaction, teamwork and shared commitment to achieve the improvement of educational practice, the ultimate goal being to favour progress towards an educating community.

In short, it would be a matter of seeing in entrepreneurship training a perfect ally for the proper training of the future teacher as an engine of change and innovative social agent of first quality.Entrepreneurship is about knowing how one can apply innovation, getting ideas inspired by imagination and reality.

For all these reasons the method of entrepreneurship teaching should consider: teachers prefer to use new (and digital) didactic material instead of schoolbooks, they consider the classroom a laboratory, they stimulate the attention of the students/ learners, using didactic methodologies such as the flipped classes, they involve external experts and welcome real-life experiences to fill the void between the theory and the practice.

Summarizing all said, this chapter builds upon existing practices, known competences teachers should have to cluster the more of the highly needed knowledge, skills and competences a "digital teacherpreneur", one who should teach future digital entrepreneurs, needs at least to some degree in three core areas: the one of new digital technology and trends, entrepreneurship matters and suitable didactic approaches to help learners best possible answer future business challenges in the digital world.

The table below gives an overview of the gathered details to form a "digital entrepreneurship teacher profile "listening the knowledge, skills and competences, as well as attitudes highlighted by the project's focus group participants and field research results found. A "digital teacherpreneur" should:

Knowledge	Skills/ Competences	Attitude
	***be able to apply social skills** *** be able to apply multidisciplinary skills (at least in digital and entrepreneurial area)** ***be able to empower creativity, spirit of initiative, responsibility, problem solving strategies** *** be able to develop social competences as the ability to cooperate, network, learn to assume new roles**	*** to be open-minded,** ***be a flexible and responsible person**
Digital – entrepreneurship related		
***know about cooperation and networking strategies in today's business world and tools commonly used** ***know about changes in working environment and related needs/ requirements** ***know about the business development circle and management strategies**	*** be able to (support to) develop new products, processes and business models** ***be able to engage with customers and stakeholders (network, teamwork, communicate) and facilitate these processes**	***have an entrepreneurial spirit** ***be inspired by digital enterprises and inspirational to others** *** be ready to take the initiative**
Tech – related		
***know the "digital language"** ***know digital tools for cooperation/ collaboration & communication, creative working and design** ***know about the need to understand a technological ecosystem around and how to exploit it for business**	***be able to teach basic skills in ICT and use a vast majority of digital tools applied in education environments (like Learning Management Systems, survey tools, content authoring tools etc. – see also further details below)** ***use databases for quick access to relevant information, analytic systems to analyse and**	***have courage anda strong commitment to new technologies being critical and attentive also to possible impact (e.g. in ethics)**

	interprete relevant information, social media– and other tools – formarketing	
Didactic aspects		
*** know new participatory and cooperative, as well as collaborative teaching approaches, tools and approaches of holistic learning** ***know about peer learning teaching needs (e.g. as in flipped classroom) helping to encourage students/ learners' self-empowerment and learning to learn** ***be aware of the fole and characteristics of a "facilitator" compared to traditional "instructors", teachers, tutors**	***be able to apply didactic and methological skills necessary for future digital entrepreneurs (particularly facilitation of learning)** *** be able to empower interdisciplinary learning**	***show curiositytowards new fields of education, as well as didactic methodologies also encompassing interdisciplinary approaches** ***to have a passion for teaching**

Certainly, this can also be seen in the 21st Century Skills Framework the EU and OECD highlight to be addressed including:

- Learning & Innovation Skills: Critical Thinking & Problem Solving, Creativity & Innovation, Communication & Collaboration;
- Information, Media & Technology Skills: Information Literacy, Media Literacy, ICT (Information, Communications &Technology) Literacy;
- Life & Career Skills: Flexibility & Adaptability, Initiative & Self-Direction, Social & Cross-Cultural Skills, Productivity & Accountability, Leadership & Responsibility;

4. APPENDICES.

Digital tools for teachers' initial and continuous professional education

Finally, when it comes to digital tools and technology development, the digital entrepreneurship teacher should be aware of and know about, we can suggest the following categories that should be considered in their initial and continuous professional education:

1. Initial Professional Education

A. *Software and technology for commercial research:*

It is interesting that students/ learners know commercial research software as part of their entrepreneurial process. This includes specific software for market research, technology applied to trade research. Commercial research may be carried out in order to:

1) Observe the behavior and habits of consumers,
2) Analyze products,
3) Conduct market research,
4) Study communication between companies and consumers.

B. *Software for the development of creativity:*

Creativity is one of the important entrepreneurial skills, also listed under the 21st Century skills; Software for the development of creativity can be used to improve this.

C. *The development of segmented products and services:*

There are useful tools for the commercial area of a company to segment markets according to different segmentation criteria (geographical, socioeconomic, demographic, ...).

D. *Office solutions and economic - financial management:*

Specific programs for the economic management and financial management of a company.

E. *Collaborative work software:*

Software can offer tools that help students/ learners work on collaborative projects, offering cooperative work, learning-services, learning-based projects.

F. *Multichannel e-commerce solutions:*

Solutions for e-commerce, teaching tools for online shopping and sales.

G. *Secure payment systems:*

Tools for a secure online payment system, e.g. pay-pal, bank recharge cards,…

H. *Management systems and web and social network analysis:*

Social media management and the management of online epromotion systems

I. *Use of big data and statistical data analysis:*

Software also offers solutions to manage big data, data intelligence: large-scale data, refers to datasets that are large and complex and require the application of data processing to manage them.

J. *Digital marketing:*

Traditional marketing tools can be enriched by digital marketing tools.

K. *Crowdfunding platforms:*

Crowdfunding platforms: a "collective cooperation, carried out by people who network to raise money or other resources, often using the Internet to fund efforts and initiatives of other people or organizations".

L. *Management in the cloud:*

The cloud refers to software running on the internet rather than on one's own computer. That is, instead of installing different files on the device, the program is activated from the provider's server. Therefore, because the applications are not hosted on a single computer but on a network of servers invisible to the user, it is called "the cloud".

M. *Augmented reality, virtual reality:*

Augmented reality and virtual reality may be used e.g. for the design of business premises, pilot heavy machinery, draft company logos and companies on the web.

2. Continuous Professional Education.

A. *Decision making supported by artificial intelligence:*

Artificial intelligence is the generic name given to a number of technologies that serve to emulate characteristics or capabilities that were traditionally uniquely linked to human intellect.

B. *Interaction with current and potential customers through the multiple channels of user interaction:*

Tools that interact with current and potential customers, across multi-channel platforms.

C. *Intelligent business management software:*

Software for intelligent and efficient business management that facilitate efficiency and efficiency in the allocation of economic, human, financial resources along the company's production process e.g.

D. *Project planning software:*

Project planning is a discipline for affirming how to carry out a project within a certain timeframe, usually with defined stages and with designated resources. A project planning view divides the activity into: Setting (measurable) objectives, time planning, development of support plans.

E. *Wearables and internet of things to increase productivity and safety:*

IoT - The internet of things can be implemented to increase the productivity and security of companies.

F. ***Intuitive programming, app development:***

Business management applications allow intuitive programming (e.g. like LEGO).

G. ***Eye-tracking systems for web and mobile design:***

Eye tracking systems within the knowledge of neuro-marketing: Neuromarketing is a field that arises from the application of the basic notions of neurosciences in the field of marketing in order to achieve information and decisive conclusions regarding how potential consumers make their consumer decisions.

This knowledge will undoubtedly bring an improvement in resource management and decrease the costs associated with experimental studies since there will be rather accurate knowledge thanks to the contribution of neurosciences.

H. ***Software to evaluate the customer experience in a multi-channel environment:***

Software to evaluate the purchasing processes on multi-sided platforms of a customer e.g.

I. ***Solutions based on artificial intelligence:***

Business solutions, entrepreneurial solutions based on artificial intelligence, consist of the design of processes that, when executed on a physical architecture, produce results that maximize a certain measure of performance.

J. ***Expertise on specific software for the business:***

Skills in specific software of companies in the sector where the students/ learners want to develop their professional activity in.


digital Teacherpreneur


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