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

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DISCLAIMER

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0. ABOUT THE PROJECT AND THIS DOCUMENT.

Digital Entrepreneurship: Innovative Teacher Training (Digital Teacherpreneur) is 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, as well as entrepreneurs in digital focused companies, are invited to participate in a short interview helping us find key learning gaps and needs as basis for the development of teaching/ learning material.

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

1. TRADITIONAL ENTREPRENEURSHIP TEACHER: A BACKGROUND STUDY.

Overview of Spain Education System

The educational competences are distributed among all the administrative levels, it is a symmetric model in which the educational competences exercised by the autonomous communities are basically the same. The educational system is regulated by the Organic Law for the Improvement of Educational Quality (LOMCE), approved in 2013 and which establishes the educational competences exercised by the Government, and their distribution in the design of the basic Primary Education curriculum, Compulsory Secondary Education (ESO), Bachelor, second cycle of Early Childhood Education, Vocational Training (VET) and Special Regime Teaching.

Educational competencies are distributed among:

- The General State Administration (Ministry of Education and Vocational Training [MEFP]).
- The autonomous communities (Councils or Departments of Education). In the cities of Ceuta and Melilla they are assumed by the MEFP itself.
- The role of local administrations focuses on educational management through the Department of Education or the Municipal Institutes of Education.
- The educational centers also participate thanks to the autonomy that they have both in the pedagogical way, through the elaboration of their educational projects, and with regard to the economic management of the resources and the elaboration.

Ministry of Education and Vocational Training:

- The general arrangement of the education system.
- The regulation of the conditions for obtaining, issuing and homologation of academic and professional titles and the basic norms for the development of the right to education.
- The establishment of general teaching programming.
- The evaluation and innovation of the teachings that make up the education system.
- High educational inspection.
- The design, planning and direction of the scholarship and study aid policy.
- The promotion of policies of equality, non-discrimination and universal accessibility in the scope of their competences.

digital Teacherpreneur

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- The direction of the teaching staff policy and the elaboration of the bases of the legal regime of the public teaching function.
- The exercise of the national authority functions of the Erasmus + program of the European Commission.

Councils or Departments of Education of the autonomous communities:

- To assume the regulation that develops the state norms and of the elements or non-basic aspects of the educational system.
- To assume the executive-administrative powers of management of the educational system in its own territory.
- Promote and strengthen the autonomy of the centres.
- Evaluate the results of the centres and apply the action plans.

Department of Education:

The General State Administration and the autonomous communities delegate to the municipalities the exercise of functions in aspects that directly affect their interests.

Schools:

Within the framework established by state and regional regulations, schools have autonomy to develop, approve and execute:

- Educational project.
- Management project
- Organization and operation rules

Structure and Organization of the Educational System

The teachings offered by the educational system are: Infant Education, Primary Education, Compulsory Secondary Education (ESO), Bachelor, Vocational Training (VET), Adult Training and University Teaching.

In addition, Language Teaching, Artistic Teaching and Sports Teaching, considered Special Regime Teaching, are offered.

In 2020 the structure of the Spanish Educational System is as follows:

1. **Infant Education:**

    • It is not mandatory
    • It is ordered in two cycles:

    ✓ the first includes up to 3 years
    ✓ the second from 3 to 6 years and is free.

Primary Education and ESO comprise ten years of compulsory and free schooling for all students.

2. **Primary Education:**

    • It is the first mandatory stage of the education system
    • Includes six academic courses that are between 6 and 12 years old

The LOMCE has introduced the individualized assessment of students at the end of 3rd and 6th of this educational stage.

3. **Secondary Education:**

Secondary education includes compulsory secondary education (ESO), the second and final compulsory stage that goes from 12 to 16 years old; Bachelor, Basic Vocational Training (VET) and mid-level VET, non-mandatory stages.

Compulsory Secondary Education (ESO):

Compulsory Secondary Education (ESO) is the second and last compulsory stage and is from 12 to 16 years old, divided into four academic courses. The ESO is organized in two cycles, the first is composed of 1st, 2nd and 3rd ESO and, the second by 4th of ESO, preparatory to post-compulsory education.

Students who do not pass these teachings receive an official Certificate of compulsory studies in which the years taken and the grades obtained are recorded.

Bachelor:

The Bachelor has duration of two academic courses, which are between 16 and 18 years of age. This title allows access to the different higher education teachings.

Basic Vocational Training:

Basic Vocational Training can be accessed between the ages of 15 and 17 if the first cycle of ESO has been passed or, exceptionally, if 2nd of ESO has been completed. At the end of these new training cycles, the qualification of Level 1 and the Basic Professional qualification is obtained, which allows access to the vocational training cycles of intermediate level or to qualify for the Degree in Compulsory Secondary Education, if in the final evaluation of the training cycle the teaching team considers that the objectives of the ESO have been achieved and the corresponding competences have been acquired.

Initial Vocational Training

It comprises a set of training cycles that constitute the mid-level FP and the higher grade FP.

To access the mid-level VET, it is necessary to have the title of Obligatory Secondary Education Graduate. Students who pass these teachings receive the title of Technician, with which they can access the Baccalaureate.

In order to take the VET of higher degree, the Bachelor's degree is required and it may also be required to have studied certain subjects related to future professional studies. Students who pass these teachings obtain the title of Higher Technician, which allows access to university teachings that are related to the previously studied VET studies.

In addition, Dual VET has been developed within the scope of the Educational System in Basic, Middle and Higher Grade VET, consisting of a set of training actions and initiatives that, in co-responsibility with companies, are aimed at professional qualification of people, harmonizing the teaching and learning processes between educational centres and work centres. Practical training in companies is supervised by educational administrations.

4. **University Teaching**

In order to access university education, in addition to the Bachelor's degree it is necessary to pass an evaluation test for university access (EVAU). After adaptation to the European Higher Education Area (EEES), university education is divided into three cycles:

- Degree, whose purpose is to obtain a general training by the student, in one or several disciplines, aimed at preparing for the exercise of professional activities. They lead to

the obtaining of the Graduate degree and consist of at least 240 ECTS credits. The expected duration is 4 years.

- • Master, whose objective is the acquisition of advanced training, well oriented to academic or professional specialization or to initiation in tasks related to research. They lead to the obtaining of the University Master's degrees and have between 60 and 120 credits, which are distributed uniformly in two courses of 60 ECTS each. Therefore, the expected duration is 1 or 2 years, respectively.

The official degrees of Graduate and University Master are accompanied by the European Supplement, in accordance with the provisions of the European Higher Education Area (EEES).

- Doctorate, which allows advanced training in research techniques. In order to obtain a Doctor's degree, it is necessary to have passed a training period and a research period, called the Doctoral Program. This program includes the preparation and presentation of the doctoral thesis, an original research paper.

1.1 The teaching workforce in Spain and the teacher's education model.

1.1.1 Initial training required to teach

To teach, teachers need to have an official university degree (or equivalent degree), although the type of degree and number differ according to educational level. Below is a table with the relationship of the different educational levels, type of degree and number:

Education level		No. of degrees	Type of degree
Child Education		1	Degree in Early Childhood Education Teacher
Primary education		1	Degree in Primary Education Teacher
Compulsory Secondary Education (ESO), Bachelor and Vocational Training		2	1. Official University Degree (or equivalent degree) 2. Pedagogical and didactic training of Postgraduate level (Master's Degree in Teacher Training)
Special regime teachings	Artistic Teachings	1	Official University Degree (or equivalent degree)
	Sports Teaching	2	1. Official University Degree (or equivalent degree) 2. Pedagogical and didactic training of Postgraduate level (Master's Degree in Teacher Training)

Source: Elaboration Eurydice Spain-REDIE (CNIIE, MEFP) based on current state regulations.

Child and Primary Education Curriculum:

BASIC FORMATION		
University degree of Teacher in CHILD EDUCATION	• Educational processes, learning and personality development (0-6 years) • Learning difficulties and developmental disorders • Society, family and school	• Childhood, health and food • Organization of school space, materials and teaching skills • Systematic observation and context analysis • The child Education School
University degree of Teacher in PRIMARY EDUCATION	• Learning and development of personality • Educational processes and contexts • Society, family and school	
DIDACTIC AND DISCIPLINE TRAINING		
University degree of Teacher in CHILD EDUCATION	• Learning of Nature Sciences, Social Sciences and Mathematics • Language Learning and Literacy • Music, plastic and body expression	
University degree of Teacher in PRIMARY EDUCATION	• Experimental sciences • Social Sciences • Mathematics • Languages	• Musical, plastic and visual education • Physical education
PRACTICUM		

Secondary / Higher Non-University Education Curriculum:

To teach in secondary education and non-university higher education it is necessary to have:

- ✓ **Official University degree or other equivalent degrees**
- ✓ **Pedagogical and didactic training of postgraduate level**. This training is acquired, mainly, through the title of University Master's Degree in Teacher Training of Secondary Education and Bachelor, Vocational Training (VET) and Language Teaching or of those degrees considered equivalent for teaching purposes.

The Master in its different specialties must include at least the following modules and content established for the entire State, respecting the autonomy of universities:

- **Generic Module:** Learning and development of personality, educational processes and contexts, and society, family and education.
- **Specific Module** (All specialties): Complements for disciplinary training, learning and teaching of the corresponding subjects and teaching innovation and initiation to educational research.
- **Specific Module** (Educational Orientation Specialty): the areas of educational guidance and psycho-pedagogical advice, the processes of educational guidance and psycho-pedagogical advice, inclusive education and attention to diversity and educational research and innovation and change management.

1.1.2 Lifelong learning

Lifelong learning in Spain is a right and professional duty of non-university teaching staff. The Ministry of Education and Vocational Training (MEFP), through the National Institute of Educational Technologies and Teacher Training (INTEF), annually establishes the priority lines to which the permanent teacher training plans must conform.

It also offers continuing education programs of a state nature and establishes appropriate agreements with other institutions for this purpose.

The LOMCE establishes a series of guidelines to which the permanent training programs offered by the educational administrations, in charge of planning and programming within its management scope, must comply. They must make available to teachers a diversified offer of activities and meet their training needs, also establishing other priority lines of training.

The guidelines to which the permanent training programs offered by the autonomous educational administrations must be applied:

- Contemplate the adaptation of knowledge and teaching methods to the evolution of sciences and specific didactics.
- Provide training related to coordination, guidance, tutoring, attention to diversity and school organization.
- Establish training programs in information and communication technologies (ICT) and in foreign languages.
- Promote educational research and innovation programs.
- Offer specific training on equal opportunities for women and men, and co-education.

Priority lines for 2019/2020 of the permanent teacher training plans at the Andalusian level determined by the General Directorate of Teacher Training and Educational Innovation:

Line I. Teacher training linked to the improvement of educational practices, performance and educational success of all students.

1. The curriculum based on key competencies.- Advice for the integration of healthy lifestyle habits and sports practices in the curricular areas in a transversal way.
2. Inclusive school for equality and equity: attention to diversity, coexistence and equality.
3. School of the knowledge society. Basic skills: Multilingualism, use of ICT and entrepreneurship.
4. Plans for improvement and training of educational centres

Line II. Teacher training as a key factor for continuous improvement and teacher professional training.

1. Professional development appropriate to the professional role. Common competences Specific competences
2. Professional development throughout professional life: Initial training, novel teaching staff, Lifelong learning education.

Line III. Teacher training as a driver of shared and produced knowledge in educational centres, educational research and innovation and good practices.

1. Educational research and innovation. Development of educational programs.
2. Research and collaborative work methodologies in the classroom.

Line IV. Teacher training as support in the progressive transformation of schools in collaborative learning and training environments in which all members of the educational community participate.

2. The participation of the entire community for the improvement of school performance and the management of the centre.
3. Attention to centres with specific learning environments (compensation, rural schools, hospital classrooms, etc.).

Line V. Teacher training for vocational training, artistic and language education and lifelong learning education as a tool to connect education with productive reality and employment.

1. Vocational Training.- Promotion of training for internationalization in VET and technical update on emerging competencies in the different professional families and the different teaching modalities: digitalization, soft skills, active methodologies, professional guidance, innovation , entrepreneurship, etc.- Consolidation of dual and prospecting projects and relationship with companies and productive sectors.- Updating of the quality system and professional accreditations in VET.
2. Artistic Teaching.- Implementation of Good Practices in relation to the regulatory framework of the European exchange and mobility programs in artistic education centres.
3. Language teaching.- Updating of the curriculum around the language activities established in the new curricular organization: mediation.
4. Lifelong Learning Education.- Attention and support for new teachers in teaching adults through their different modalities.- Strategies that facilitate attention to the heterogeneity of students in adult education, both for presenting specific support needs educational as being a population at risk of social exclusion.

1.2 Entrepreneurship Teachers in Spain 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, the entrepreneurial person, the entrepreneurial spirit, the entrepreneurial initiative, the entrepreneurial competence, the learning to undertake entrepreneurship and much more of entrepreneurial skills and abilities within the Spanish education system.

Entrepreneurship: key competence for the integral development of future teachers

In the year 2000, after the Bologna Declaration, the need arose to determine, at European level, the generic and specific competences for "initiative and entrepreneurial spirit". But what do we mean when we talk about entrepreneurship, entrepreneurial spirit or entrepreneurial initiative (as well as other related terms)?

The European Commission defined the entrepreneurial initiative as an attitude, a way of thinking or mentality as well as a process to create (economic) activity. This process includes motivation, risk taking, creativity, innovation, ability to identify opportunities, fight for them, produce value, induce changes, assume responsibilities, set objectives and fulfil them.

It is also in 2003 when, with the objective of helping the future teacher, the guide for the teacher called The Entrepreneurship: Engine of Change is published. It states that:

> ... people with entrepreneurial spirit have the ability to innovate; They are willing to try new things or do them differently ... what we call entrepreneurial spirit entails a much broader aspect of positive attitudes ... it means wanting to develop capacities for change, experiment with one's ideas and react with greater openness and flexibility . The entrepreneurial spirit has a double facet. On the one hand ... it means knowing how to launch new projects with autonomy, ability to take risk, with responsibility, with intuition, with the ability to project abroad and with the ability to react and solve problems. On the other hand, it also means knowing how to carry out other projects with the same spirit of innovation, responsibility and autonomy. Educating the entrepreneurial spirit requires training students in responsibility, commitment, effort, dedication, perseverance and work spirit (Directorate General for Small and Medium Business Policy).

Following these definitions, it was established that, being aware of the important role that education plays in promoting entrepreneurial attitudes and behaviours, the entrepreneurial initiative must be considered as "a key competence for all, which helps young people to be more creative and have more confidence in any activity they undertake".

In fact, the sense of initiative and entrepreneurship is one of the key competences of the European educational framework. The Commission insists that investment in education and training are essential to boost growth and competitiveness. Stresses that we must concentrate efforts on the development of transversal skills (competences) such as critical thinking, initiative, problem solving and collaborative work because they prepare people for career paths, which are nowadays so varied and unpredictable. Also, bet on the skills related to entrepreneurship because they not only contribute to the creation of new companies, but also to the employability of young people.

In short, entrepreneurship, entrepreneurial initiative, entrepreneurial spirit or entrepreneurial competence, what must be sufficiently justified is the need to promote and implement an education in entrepreneurship that begins with the implementation of training programs aimed at society in general and Future teachers in particular. After all, these will be important reference models for the new generations of citizens of a constantly changing society that demands competent people and professionals who are capable of responding, in an innovative way, to the different challenges that are approaching.

In the case of future teachers, we have only to look at the functions that have been granted to the teacher from the Organic Law for the improvement of the educational quality LOMCE, which establishes that the professional orientation of the students is their own, attention to their social development, the promotion of values of a democratic citizenship or the continuous improvement of their teaching profession.

Increasingly, it can be observed in the different state and regional regulations at the Spanish level, the value that would add to entrepreneurship training in entrepreneurship. In fact, it highlights the importance of promoting teacher training in innovation through analysis and reflection on 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.

Finally, for this it is considered necessary that teacher training be supported by the implementation of innovation in the 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.

Characteristics of the teacherpreneur or Entrepreneur Teacher in Spain

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 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 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 ABP (Project Based Learning) and in which the textbook is usually replaced by materials and resources that they themselves design and / or are responsible for prepare. 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 his lesson masterfully, is a companion, a guide, a person who focuses on the learning processes of each student and the development of their skills.

The European Project CIP-Project Young Entrepreneurship Developing in Action stands out among the entrepreneurial competences (defined as knowledge about entrepreneurship and entrepreneurship education, open reflective attitude towards entrepreneurship) that teachers have to develop in the classroom and at throughout its professional development process, the following competences:

- o **Entrepreneurship competences**: The teacher can identify and take advantage of opportunities; make 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.

o **Personal competences:** The teacher is able 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; helps to reach consensus; develop a cultural and social awareness; raise and discuss ethical issues; and act and react flexibly.

o **Didactic competences:** The teacher can 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 functions since he goes from being a "mere" provider or transmitter of knowledge to becoming a learning facilitator. We refer to a kind of mentor (coach) who guides students' learning processes not only individually but also as members 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 teacherpreneurs match with those that are considered as characteristic of an entrepreneur, that is, the need for achievement, independence, the locus of internal control, that is, the perception that the results are produced by one's own actions, the risk propensity, self-confidence, creativity and initiative, and that coincide with the personality of the entrepreneur. They also bear similarities with the indicators in which they disaggregate the competence to learn to undertake, that is: personal autonomy, leadership, innovation and entrepreneurial skills, and with the values of the entrepreneurial spirit considered indispensable and proposed by the Directorate General for Small and Medium Policy Company (2003). In the latter case, personal values (creativity, autonomy, self-confidence, tenacity, sense of responsibility and ability to take risks) and social values (leadership, team spirit and solidarity stand out)).

Entrepreneurship education in the curriculum:

The current educational legislation takes as reference the Recommendation 2006/962 / CE of the European Parliament and of the Council, of December 18, 2006, on the key competences for Lifelong Learning.

Although there is a change in the denomination and the number of competences goes from 8 to 7, both adopt the same definition and an integrative approach, valuing the opportunities offered by the fields of formal, non-formal and informal education for their development. From this perspective, all areas or subjects of the curriculum will contribute to the acquisition of different competences, although in no case will there be a unique relationship between the teaching of certain areas and the development of certain competences.

LOMCE Key Competences:

- ✓ Linguistic Communication
- ✓ Mathematical competence and basic competences in science and technology
- ✓ Digital Competence
- ✓ Social and civic competences
- ✓ Cultural awareness and expressions
- ✓ Learn to learn
- ✓ Sense of initiative and entrepreneurial spirit

Entrepreneurship education is integrated into the curriculum through 3 modalities or approaches (EURYDICE, 2012):

- As a transversal element.
- Integration into existing subjects.
- Creation of specific subjects.

In the analysis of the different stages, it turns out that entrepreneurship is included as a transversal element in all stages, as can be seen in the following table.

Primary education	ESO and Bachelor	Basic VET
"The primary education curricula will incorporate curricular elements oriented towards the development and deepening of the entrepreneurial spirit. Counselling with education competencies will encourage measures for students to participate in activities that allow them to strengthen entrepreneurship and entrepreneurship based on skills such as creativity, autonomy, initiative, teamwork, trust in oneself and the critical sense"	"The Secondary and Bachelor Education curricula will incorporate curricular elements oriented to the development and strengthening of the entrepreneurial spirit, to the acquisition of competencies for the creation and development of the various business models and to the promotion of equal opportunities and respect for the entrepreneur and to the entrepreneur, as well as to business ethics. The educational administrations will promote measures so that students participate in activities that allow them to strengthen entrepreneurship and entrepreneurship based on skills such as creativity, autonomy, initiative, teamwork, self-confidence and critical sense"	"All the Basic Vocational Training cycles will include in a cross-sectional manner in the set of professional modules of the cycle the aspects related to teamwork, the prevention of occupational hazards, entrepreneurship, business activity and career guidance of students and the students, who will have as a reference for their concretion the subjects of basic education and the requirements of the professional profile of the degree and those of the productive reality"

In Primary Education the development of entrepreneurship is carried out through the inclusion of curricular elements in two areas: Social Sciences (core) and Social and Civic Values (specific). In the case of the first, of a mandatory nature, "the development of individual and team work habits is encouraged, as well as effort as an essential element of the learning process and responsibility in the study, as well as attitudes of self-confidence, critical sense, personal initiative, curiosity, interest and creativity in learning and entrepreneurship."

In Secondary Education, the subject of the block of specific subjects "Initiation to entrepreneurial and entrepreneurial activity" in the first cycle begins to be taught. Its namesake in the 4th ESO has a mandatory character for students who take the option of applied teaching. Both subjects are strongly associated with the development of the "sense of entrepreneurial initiative and entrepreneurial spirit" competence, and they structure their contents into three main blocks: Personal autonomy, leadership and innovation, business and finance project.

In Bachelor, Fundamentals of Administration and Management (2nd year) is the subject of the block of specific subjects that will provide students of the modalities of Science and Arts a new opportunity to continue deepening aspects related to the creation and management of companies. In the case of students of the Humanities and Social Sciences modality, both Economics (1st year), but especially Business Economics (2nd year), seek to encourage the development of this competence.

The Vocational Training cycles will continue to offer the Enterprise and Entrepreneurship module. In the case of Basic VET, developing the initiative, creativity and entrepreneurship is a general objective that requires a transversal approach.

Guidelines for the development of methodological strategies

At the state level, Order ECD / 65/2015, of January 21, which describes the relationships between competencies, content and evaluation criteria of primary education, compulsory secondary education and high school, includes its annex II a set of guidelines to facilitate the development of methodological strategies that allow working for competences in the classroom, although they are not exclusive to the competition "Sense of initiative and entrepreneurial spirit".

At the autonomous level, only Castilla y León and Cataluña have specific guidelines. Thus, for example, the Resolution of August 30, 2013, of the General Directorate of School Education Policy of Castilla y León establishes pedagogical guidelines and determines the actions aimed at promoting entrepreneurial culture in centres supported by public funds and at all stages Educational

These documents are based on a socio-constructivist conception of learning, in which the student defines himself as an active and autonomous subject who builds and takes responsibility for his own learning. Consequently, it seeks to arouse curiosity and motivation to learn based on the interests of the students themselves. The proposed methods are based on action-oriented learning and interactive strategies that raise real situations, both inside and outside the classroom, to apply the knowledge, skills and attitudes acquired. Thus, Project-based Learning (ABP), cooperative learning, problem-based learning, are some of the methodological strategies that are frequently associated with the development of skills and / or entrepreneurial competence. The integration of Information and Communication Technologies is another point in common.

Methodological guidelines associated with competency-based learning Order ECD/65/2015 (2015):

- Work for projects

- Cooperative learning
- Problem-based learning
- Case studies
- Landmarks
- Portfolio

Particularly relevant is the role reserved for teachers in basic curricula, highlighting their ability to "design tasks or learning situations that enable the resolution of problems, the application of knowledge learned and the promotion of student activity".

The scheme adopted by the Educational Administrations in the methodological orientations of each subject does not show great variations with respect to the state one, and it continues to bet clearly on active methodologies such as project work, as the curricula of elective subjects in ESO suggest and mainly in Baccalaureate: Integrated project of a practical nature (Andalusia), Treball de recerca (Catalonia) or Integrated research project (Asturias), which dedicates its Annex II to explain in detail the key elements of Project Based Learning.

This and other methodologies, such as service-learning, cooperative learning or problem-based learning, also take center stage in the educational guides of entrepreneurship programs and projects designed by different entities with the aim of providing practical entrepreneurial experiences.

Practical experiences in entrepreneurship

Practical experiences in entrepreneurship are understood as those in which students have the opportunity to develop the knowledge, skills and attitudes necessary to detect opportunities, generate ideas and put them into practice. These activities should be carried out autonomously, individually or in groups, including practical learning and producing tangible results (EURYDICE, 2015).

A pattern that is repeated in several educational Administrations is the combination of a set of experiences that emphasize different facets or aspects of entrepreneurship: personal, social, cultural or business, to create a continuum of opportunities in the successive stages of the education system. Asturias developed a pioneering work in this regard with its Entrepreneurs Training Chain, but at present each Autonomous Community already presents its own offer in which educational centres participate voluntarily.

With relative frequency the practical experiences of entrepreneurship include very precise orientations to facilitate teachers their fit in the curricula of certain subjects (Education for Citizenship, Social Sciences, Integrated Research Project, Enterprise and Entrepreneurship), or for their development in Tutoring hours This strategy significantly facilitates the degree of implementation of certain initiatives, when developed during school hours..

Typology

As is clear from the good practices identified by the Autonomous Communities, the creation of mini-companies and the design of business plans have been the most common practical experiences in much of the State, becoming part of the curriculum in several Administrations educational.

The initiatives that involve the creation and management of a company by a group of students over a certain period of time are quite widespread, particularly in Primary Education and Secondary Education. This type of experience has a long history in Spain, although it does not appear in the legislation until Law 14/2013, of September 27, of support for entrepreneurs and their internationalization, which recognizes the "mini-company" or student company as "Pedagogical tool through which you can make economic and monetary transactions, issue invoices and open bank accounts. These companies would last one year, extendable to two, after which they would be liquidated. Students could, through them, make real transactions without embarking on the risk of creating a real company".

The text of this provision is still quite unknown in the educational field, although it defines aspects related to duration, fiscal obligations and civil liability of the mini-companies that respond to some of the most frequent doubts that arise when applying this tool in the classroom.

In Bachelor and VET, the initiatives whose central activity is the development of company projects carried out by the students throughout the whole year are more prominent, although some Communities also keep the mini-companies at these levels. These initiatives are organized as a contest, where the finalist teams have the opportunity to make a public defense before a jury demonstrating the viability of their project and the willingness to implement it, although the latter is not an indispensable requirement in most of the cases analysed. Business simulation programs are another common modality to promote entrepreneurship, although in this case the focus is on business management aspects, as is evident in the Empresaula Program (several Autonomous Communities), Simula (Galicia) or PEON Online Business Plan (Catalonia).

In recent years there has been a diversification in the type of education programs for entrepreneurship, with the implementation of a series of experiences that use alternative approaches to the previous ones, although all of them coincide in the objectives pursued. The main models are:

- Educational innovation projects promoted by the centres themselves that imply a process of detecting opportunities and generating ideas that end up embodied in a specific final product, such as the Profundiza Program (Andalusia), the Extremadura

Network of Entrepreneurial Schools (Extremadura) or the Educate Entrepreneurial Talent program (several Autonomous Communities).

- Challenges posed by companies, business organizations and other institutions to develop concrete solutions to social, cultural or environmental problems in the local environment. Think Big Schools (several Autonomous Communities), Design For Change (several Autonomous Communities), Kosmodisea (Basque Country), Joinlab (Madrid) or InnovaFP (Catalonia).

- Workshops and dynamics for the development of entrepreneurial skills and attitudes that rely on materials of various kinds hosted on web platforms. Grow Up (Murcia), Method Oreoh (Canary Islands) or FuturEmprende (La Rioja) are examples of this strategy in Primary Education, to which are added programs in ESO and Baccalaureate as Young Creactives (Canary Islands) or YPD Box (Aragon, Castilla León, Castilla - La Mancha, Galicia and Region of Murcia).

- Initiatives associated with career guidance that have the involvement of entrepreneurs and companies in the environment willing to bring the reality of entrepreneurship to the classroom, with examples in Castilla y León (YourCompany), Catalonia (Escola i Empresa), Galicia (Dare), Asturias (Entrepreneurship Network) and Murcia Region (Success stories of VET entrepreneurs)

- Programs that combine the development of digital competence and entrepreneurship through robotics (Cantarobots, Cantabria), mobile application programming (Apps for Good, Madrid) or 3D printing (Aulab, Asturias).

- Accompanying devices for the creation of companies in VET, which combine advice and accommodation facilities in nurseries located in the centers themselves, as observed in Aragon, Galicia (Emprende), La Rioja (Spin-offs in FP), Navarra (Ideation) and Basque Country (Urratsbat).

This offer is completed with an increasing number of entrepreneurship projects designed by teachers and with various financial education programs: Financial Education Program (MECD, Bank of Spain and CNMV), Financial Education for Youth and Adults (BBVA), El Recetario Financiero and the Financial Education Program in the Schools of Catalonia (EFEC).

These programs are promoted on a large scale directly by the Autonomous Administrations through agencies or entities integrated in their structure. (eg Andalucía Emprende, a foundation attached to the Ministry of Economy, Innovation, Science and Employment of the Junta de Andalucía that promotes several educational programs to promote entrepreneurial culture, the Aragonese Institute for Development in Aragon, or the Valnalón Technological City, dependent of the Government of Asturias).

In other cases, administrations sign cooperation agreements with public entities or foundations for the transfer of a specific experience to their territory, which usually includes teacher training, distribution of teaching materials and accompaniment to participating centres to throughout the course.

The number of actors from the private sector has been constantly increasing, as evidenced by the inclusion of programs such as Think Big Schools (Fundación Telefónica), StartInnova (Vocento Group) or YPD Box (Young Potential Development) among the examples of good practices identified by several Autonomous Communities. In some territories the involvement of banking entities in the development and / or financing of specific programs is observed. This is the case of the Equlicuá program co-financed by the Caja Navarra Foundation, or the granting of loans to educational mini-companies in Asturias by Cajastur.

One of the most common ways of approaching entrepreneurship to the classroom is through visits or talks in which entrepreneurs share their experience with students. In some Autonomous Communities there is a clear commitment to extend, strengthen and expand this type of collaboration, in which Local Development Agencies or Economic Promotion, Business Centres and Business Associations create the structure and acquire a role as intermediaries between educational centers and companies or entrepreneurs in their environment. In Catalonia the Escola i Empresa program (FEMCAT) and in Asturias the Entrepreneurial Network (Valnalón) represent two good examples of this type of approach.

Actions to promote entrepreneurship in VET centers

It is possible to promote the entrepreneurial initiative in the Vocational Training centres through various actions that promote the set of entrepreneurial competences with their own meaning, such as decision making, presentation of ideas orally and in writing, persistence, negotiation, assertiveness, assumption of risks, teamwork, dynamism, observation, perseverance, self-confidence and business ethics. In addition, the enhancement of the figure of the entrepreneur and his social responsibility laying a new positive basis for the entrepreneurial culture. Many of the actions that are implemented in the centres have been designed to progressively reach society as a whole, and will actively incorporate those other agents that may be involved in the educational process within society. The most outstanding activities carried out in the VET centres are, among others, the following:

A. With the aim of promoting knowledge and skills to investigate, undertake and innovate, as transversal competences in Vocational Training, actions can be developed whose purpose is to achieve the competences of the entrepreneurial spirit and boost the information and motivation of the spirit entrepreneur.

- Face-to-face creative workshops aimed at students and teachers.

- Organization and participation in conferences, meetings, conferences, days of the entrepreneur and seminars taught by national and international human resources experts, counselors, former businessmen and outstanding entrepreneurs aimed at teachers and students.

- Analysis and planning of specific training for teachers of the specialty FOL, Administration and Management, Commerce and Marketing, Project and FCT as well as all those professors interested in promoting entrepreneurship in classrooms.

- VET teacher stays in companies as a permanent teacher training activity.

- Initial and permanent training in NTIC something essential for its use and integration in the teaching and learning processes for both students and teachers.

- Increase in visits to Science and Technology Parks, companies in its sector and its surroundings, development agencies and incubators, nurseries and nurseries at the university or local entities and any public-private entities and organizations involved in the venture.

- Organization and promotion of Professional Training Project contests organized for all VET education.

- Participation of students, teachers, centers and companies in the regional, national or European Education Olympics.

- Days of sensitization, motivation and dissemination for the knowledge of the initiatives creation of companies and generational change in the autonomous and state spheres.

B. With the aim of simulating and putting into practice the skills and knowledge acquired, with the purpose of realizing the experiences of entrepreneurship in the effective start-up of a small business or, where appropriate, materializing in innovative initiatives arising from the different educational projects, living between the educational system and the productive system.

- Establishment in the centres of the figure of the professor-dynamizer, as responsible for the associations between the centers and the companies as well as the creation in the nursery educational centers themselves for the support and tutoring in the first to the novel entrepreneur, enhancing their skills and turning the centres into authentic innovation incubators.

- Sensitization of companies, especially at the local and regional level, that are able to launch initiatives to participate in education projects in entrepreneurship within their social responsibility (CSR).

- Detection of those companies likely to participate in initiatives for the generational change and the transfer of Know How

- Group dynamics based on simulated startup creation events.

- Participation in European mobility programs, such as the Erasmus Young Entrepreneurs project and exchanges of educators and entrepreneurs to promote entrepreneurship.

- Promotion of exchanges of good practices in teaching entrepreneurship and publishing and disseminating case studies and good practices among educational centres.

- Boosting meetings of former entrepreneurial students and small businesses arising from these initiatives.

C. With the objective of creating a dynamic framework in which all the agents of the educational and business system participate, which favours synergy, promotes entrepreneurship and produces added value in promoting entrepreneurship in VET.

- Implementation of dissemination strategies in the media, the web and social networks of all good practices in entrepreneurship of the VET.
- Organization of specific training courses in business NTIC tools, social networks and Web 2.0 for the dissemination of its initiatives for students and teachers
- Implementation of stable joint actions of the Administration and other public-private entities and organizations.

Recommendations for the design of training actions

Competences	Contents	Innovative Pedagogical Methods	Evaluation systems
✓ Leadership ✓ Boldness ✓ Initiative ✓ Perseverance ✓ Disposition, assumption and ✓ Risk management ✓ Uncertainty tolerance ✓ Acceptance of failure ✓ Decision making ✓ Innovation ✓ Creativity ✓ Creative thinking ✓ Systemic thinking ✓ Critical thinking ✓ Self confidence ✓ Reflection ✓ Learning orientation ✓ Negotiation capabilities ✓ Project management ✓ Information search ✓ Search for opportunities	✓ Concept of teacher coach and teacher facilitator ✓ Evaluation concept integral ✓ Citizenship concept participatory ✓ Flexibility concept ✓ ICT and the new means of communication ✓ Generation, valuation and selection of innovative educational actions ✓ Educational innovations ✓ Importance in involvement in local problems ✓ The (social) commitment ✓ Educational innovations ✓ Importance of networks educational and networking ✓ Creative teaching practices and innovative ✓ Personal and social education	✓ Learning based on competition and talent ✓ Learning based on experience ✓ Workshops ✓ Practical learning ✓ Professional practice ✓ collaborative (effective) ✓ Teamwork ✓ Work for projects ✓ Sense of vision and mission ✓ Responsibility of students in their own learning processes ✓ Learning itineraries, flexible ✓ Collaborative learning ✓ Troubleshooting ✓ Visits to companies ✓ Expert testimonials ✓ Case studies ✓ Experimentation ✓ Simulations ✓ Laboratories ✓ Action research ✓ Debate, dialogue and interaction ✓ Associations ✓ Learning from error	✓ Materials development ✓ Development of dictionaries of entrepreneurship ✓ Design of actions of entrepreneurship ✓ Design of methodologies of innovative learning ✓ Development of new products or services to be used in the educational field ✓ Implementation of actions innovative training ✓ Participation in competitions ✓ Co-evaluation

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1.3 Main Findings

I. The Spanish Education System and its current legislation take as reference the Recommendation 2006/962 / EC of the European Parliament and of the Council, of December 18, 2006, on the key competences for Learning, incorporating the Sense of Initiative and Entrepreneurship as a Transversal competence in all educational stages.

II. Both through initial and permanent teacher training, skills and abilities related to entrepreneurship are being worked on:

In general, the initial teacher training addresses in a transversal way the development of certain skills and attitudes associated with the entrepreneurial competence, although there do not seem to be specific matters of education for entrepreneurship in the different itineraries of initial teacher training. Some Autonomous Communities have referred to the offer of generic business creation courses by Universities, but which in no case address the pedagogical aspects associated with the development of entrepreneurial competence in the classroom.

Similarly, the Plan for the Promotion of Entrepreneurship Culture in the Public Education System of Andalusia includes in its battery of actions "Complement the Master's Degree in Secondary Education Teaching with content specific to the Entrepreneurial Culture" through the "organization of Complementary initiatives to the Master that include in the practicum a line of work on creativity and innovation in Andalusian classrooms."

The annual permanent teacher training plans bring together many courses, workshops and workshops related to entrepreneurship education. These training actions are grouped into five broad categories:

- Courses related to the creation and management of companies.
- Courses oriented to the implementation in the classroom of specific Entrepreneurial Education programs.
- Courses that address the development of entrepreneurial competence in a transversal way.
- Methodology courses associated with the development of entrepreneurial competence.
- Courses for the design of entrepreneurial projects led by teachers.

2. ENTREPRENEURSHIP TEACHERS IN THE DIGITAL ECONOMY: A FIELD SURVEY.

2.1 Introduction – about scope and sample

The interviews took place in february 2020. The interviewees (10 people were interviewed, 2 women and 8 men) were from different business backgrounds, but all of them had a common name for their relationship with the business, which has given us a global vision of it and specifically of the way to undertake and teach to undertake digitally, the profile of people interviewed has been educators:

- ✓ Head of studies of VET of the safa linares centre (jaen)
- ✓ Teacher of formation and labour orientation of safa linares (jaen)
- ✓ Professor of entrepreneurship safa linares (jaen)
- ✓ Professor of economics and business organization at the university of jaen
- ✓ Professor of economics and business organization at the university of jaen
- ✓ Professor of computer science, and head of information and communication technologies (ict) in safa linares (jaen)
- ✓ Director of an infant and primary education centre in navas de tolosa (jaen)
- ✓ Marketing researcher at the jaen provincial government.
- ✓ Entrepreneurs former student of the center, entrepreneur-owner of the workshop " motor";, in linares (jaen)
- ✓ Entrepreneur-owner of the" familia"; stationery store in linares, father of a student at the center.

2.2 Summary on suggested profile (key characteristics / skills and competences) of an efficient teacher-entrepreneur

Characteristics of the Digital Teacherpreneur: Skills and competences

There are characteristics that make the difference between a teacher who explains entrepreneurship and another teacher who lives and motivates towards entrepreneurship, that is, who is a facilitator of Entrepreneurship. The characteristics that mark these differences are:

- ✓ Push, Motivation and Illusion to undertake a project
- ✓ Drive and Initiative to meet new challenges
- ✓ Constancy, Tenacity, Commitment and or Personal Responsibility
- ✓ Decision-making and problem-solving skills
- ✓ Tolerance to pressure and uncertainty
- ✓ Self-discipline and Perseverance
- ✓ Training, Creativity and Innovative Spirit
- ✓ Ease of interpersonal relations
- ✓ Honesty, Ethical Values and Integrity
- ✓ Work capacity and confidence in it
- ✓ Realism, Objectivity and Seriousness in the approaches
- ✓ Ability to see and observe for opportunities
- ✓ Achievement motivation and risk appetite
- ✓ Targeting and systematic monitoring of results
- ✓ Facilitate in others the willingness to start the entrepreneurial process of training these qualities.

In addition to those mentioned, a Digital Entrepreneurship Facilitator must know and understand the tool or software to be used, permissions granted and use or know the risks of misuse of the digital tool. Regarding the competences linked to digital entrepreneurship, one of the most important is the ability to search and synthesize, given the large amount of information offered by the web.

Likewise, it is important that teachers have support elements to acquire competencies or to favor them (Support from both official bodies, and from organizations that support entrepreneurship), and in this sense the training in Entrepreneurship, and specifically in digital entrepreneurship is very important and necessary, in addition to being backed by governments, educational legislation….

It is essential to be a facilitator to be in contact with collaborating companies of the centers, or with entrepreneurs out of the vocational training centers, (knowing their difficulties, their

achievements, their frustrations and their successes) there is usually a distance between what is explained in class and what happens in the real life of an entrepreneur, knowing these aspects by the Entrepreneurship teacher is essential to become an effective entrepreneurial teacher.

Highlight that VET-Dual is a type of teaching that makes it easier for students to see the reality of a company in digital environments, as well as see how different entrepreneurial skills are put into play.

The competences that would be lacking are Experiential, *"It is not transmitted well what has not been lived, learned or experienced".* It is not intended that all teachers have been productive entrepreneurs, logically, but that they are enterprising people in their daily lives, with entrepreneurial qualities placed at the service of an educational vocation or a service to society (social entrepreneurship).

In this sense the relevant competences or skills would be:

- **Ability to energize entrepreneurship in the classroom:** Being an individual dynamizer, a coach capable of getting the best out of each student and orienting them to results, able to see risk as an opportunity in life**.**

  That the teacher has a role based on offering tools for problem solving.

- **Breaking barriers to entrepreneurship:** Breaking psychological barriers to entrepreneurship and especially to digital entrepreneurship:

  "It is understood by psychological barrier, any fear or inner difficulty that an individual encounters when it comes to achieving his goals"

Psychological barriers are the main difficulty that exists when creating a company or promoting entrepreneurship.

And this is the real challenge that teachers have in the task of promoting the entrepreneurial Spirit in the Classroom: "Breaking Psychological Barriers to Entrepreneurship" and consequently normalizing entrepreneurial activity, not as a second option if the student does not find work on their own outside, but as the first job option for our students.

In addition, Digital Entrepreneurship in this regard offers a new field for the employability of our students, which must be valued in the classroom: Explained, Motivated and Facilitated.

List skills, competences, attitudes that might differ from those of "regular" teachers:

Skills/Habilidades	Competences	Attitudes
recognize the importance of social media for the business	know how to create websites	capacity for stimulating the students' creativity.
Capacity to upgrade one self	use swfor digital communication	creativity and imagination
knowing how to orient oneself in the digital world.	know how to use the cloud.	Sensitivity to changes
know how to use ICT tools available at school in a new and innovative way.	Problema solving	a motivation to provide meaningful learning experiences for all students,
ability to read digital market trends and transform them into educational contents easy to transfer to students		
ability to dialogue with the business world		

2.3 Results from semi-guided questionnaire – (about) learning needs/ gaps

Technologies applied to teaching practice in Entrepreneurship:

The use of App and online tools will be a fundamental part of teaching practices. Augmented reality and virtual reality are the future and you can get more out of them. As an example, some tools are presented:

- ✓ Google Market Finder.
- ✓ Symballoo is a very useful tool for organizing web content.
- ✓ Google Sholar, an important tool for research and effective information search.

- ✓ Google Drive and its associated applications.
- ✓ Robotics, computational thinking and programming, this being very necessary in the normal business world.
- ✓ Digital marketing.
- ✓ Management of specific vocational training programs.
- ✓ Business management programs, invoicing, work orders, orders and other legal issues to be fulfilled by companies.

In particular, we could mention some necessary tools that must be implemented in the training of entrepreneurship teachers: intelligent business management software, office automation and economic-financial, accounting and tax management solutions. ERP, project planning software, collaborative work software, use of big data and statistical analysis of data, wearables and internet of things to increase productivity and security, 3D printing, robotics, machine learning, intuitive programming, development of apps, digital marketing, CRM systems, multichannel e-commerce solutions, web and social network management and analytics systems, computer security, cloud management, augmented reality or virtual reality.

Teachers in general have little knowledge about technologies, falling responsibility for everything related to ICT in coordinators or people with sufficient competence in the subject. Teachers, in addition to handling the necessary specific techniques of educational innovation such as cooperative work, project learning or the inverted class, have to be trained and updated on issues of computer science and digital entrepreneurship.

In the process of teaching digital entrepreneurship there are several aspects in which it is necessary:

a) The applications that exist to create companies (or business simulators for students) are focused on physical businesses, not so much on digital environments. Specific applications of digital entrepreneurship would be necessary, considering sources of income and cost centers specific to this type of business.

b) It is also necessary to create a global platform where all the agents that directly or indirectly are related to entrepreneurship can find: informative links, publications and events that allow them to work in the development of digital entrepreneurial initiatives.

c) Entrepreneurship and the development of entrepreneurial activities should be part of the curriculum of all educational stages, since entrepreneurship is a cross-cutting subject that fosters the personal development of students. Since education is currently focused on the use of ICT, in addition to promoting entrepreneurship

in the classroom, digital technologies must be used to foster an entrepreneurial culture among students.

d) Interactive software, which allows the student to know / fictitiously establish a company created on the Internet and know its operation. Through Lean Startup techniques.

Analysis on needs/gaps to be filled in initial and continuous professional education to deepen digital entrepreneurship and teacher training needs for this area of entrepreneurship:

Initial Education	Lifelong Learning Education
- **Software and technology for commercial research** - **Software for the development of creativity** - **The development of segmented products and services** - **Office solutions and economic-financial management** - **Collaborative work software** - **Multichannel e-commerce solutions** - **Secure payment systems** - **Management systems and web and social network analysis** - **Use of big data and statistical data analysis** - **Digital marketing,** - **Crowdfunding platforms.** - **Management in the cloud,** - **Augmented reality, virtual reality.**	- **Decision making supported by artificial intelligence** - **Interaction with current and potential customers through the multiple channels of user interaction** - **Intelligent business management software** - **Project planning software** - **Wearables and internet of things to increase productivity and safety** - **Intuitive programming, app development,** - **Eye-tracking systems for web and mobile design** - **Software to evaluate the customer experience in a multi-channel environment** - **Solutions based on artificial intelligence** - **Expertise on specific software for the business**

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