

# Entrepreneurial Competencies and Business Creation, A Research on Policies and Applications

Serena Cubico, Jocilene Gadioli de Oliveira, Massimo Bellotto, Maddalena Formicuzzi, Giuseppe Favretto, and Riccardo Sartori

**Abstract**—The theme of this study can be justified by the importance that European Union gives in promoting the culture of *Entrepreneurship* among young people, so that they can deal with more awareness and attitude to future educational and career choices. Set this as a premise, this research aims to give an answer to this question: is the Italian university system really meeting the European expectations in terms of developing *sense of initiative and entrepreneurship* among Italian university students. This article focuses on describing and analyzing the perception that Italian university students have about entrepreneurship in *Higher Education*. A quantitative research method was used (a questionnaire structured and applied to a sample of 1918 university students). The most significant results are: 71% of the students do not work; 7% are entrepreneurs and out of 71% students who do not work, 39% never had a work experience. However, most of the respondents show interest to start a business and this perception decreases over the years. Moreover, 58.4% do not believe that the university can help a student find a job and 57.6% believe that the university can help an entrepreneur, but only 12.8% actually. A *Supranational Policy of Education* indicates that *Higher Education* should develop competencies in students, especially those ones that are considered as key competencies for a student such as initiative, *Sense of initiative and entrepreneurship*, but how effective these indications are in reality if, as percentages show, only a few students opt for an entrepreneurial career.

**Index Terms**—Entrepreneurship, Europa, Italy, key competencies, new venture, policy, university education.

## I. INTRODUCTION

This chapter looks at whether entrepreneurship education is explicitly recognized in European countries' central level educational steering documents (official documents containing curricula, guidelines, obligations and/or recommendations).

“Approximately 15 years ago Etzkowitz [1] and Clarke [2] alerted the world to the emergence of an ‘entrepreneurial university’” [3]. Higher level of education increases the likelihood of becoming self-employed; education appears to be an endogenous variable regarding the decision to become self-employed [4].

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In recent years, the concept of *key competences* has gained prominence in European education systems with specific focus on the instruments for Life Long Learning [5]. Most European countries have made significant progress in incorporating the key competences into national curricula and other steering documents and they have adopted different approaches to guide and support the development of the key competences approach. All European countries have made significant progress in embedding key skills into steering documents and school curricula to meet today's societal demands. However, countries do so using different approaches and to varying degrees. While a number of countries have launched national strategies to improve the teaching and learning of all key competences, others focus only on some of them [6]. Other countries yet do not have any strategies at national level for specific key competences. Instead, they launch centrally coordinated initiatives to promote these competences. Large scale initiatives range from school partnerships to national campaigns and mainly aim at increasing students' interest in the respective subject area.

While reforms and improvements can be implemented without a strategy, the existence of a strategic action plan has the advantage of clearly defining policies and goals for improvement, and, together with a timeframe for completion, may help mobilize efforts to bring about substantial change [7]. Only by assessing students can we know if what has been taught has been learned. Proper assessment can thus play an important role not only in evaluating students' knowledge, but also in evaluating schools. If students sit the same test throughout a country, that is, are tested in a standardized way, test results can be used to monitor education systems as a whole. This type of national testing is in fact a widespread practice in European education systems [8]. However, tests focus largely on the basic skills, especially on literacy and mathematics and often neglect transversal skills. Among the key transversal skills, only civic competences undergo standardized assessment but this is only the case in around one third of European countries. While this is not to say that standardized tests are the answer and different assessment methods need to be used in a coherent assessment framework, it is clear that testing transversal skills, which are often embedded into other subjects, poses a challenge of its own. Testing tools which cross subject boundaries are needed. Testing tools for IT are already widespread throughout Europe. For example, the *European Computer Driving Licence* (<http://www.ecdl.com/>), a European level certificate, is used in around half of European countries to test IT skills. To obtain the certificate, students need to master seven groups of computer skills and competences. Other countries

offer similar, nationally recognized ICT (Information, Communication and Technology) certificates. *“The EU commission and governments throughout Europe continue highlight the importance of innovation and entrepreneurship”* [9].

According to the Key Competence Framework [10], the entrepreneurship key competence refers to an individual's ability to turn ideas into action. It includes creativity, innovation and risk taking, as well as the ability to plan and manage projects in order to achieve objectives. About entrepreneurship education there is a lack of understanding of how pedagogical inputs can influence learning attitudes and intentions related to entrepreneurial development. It is important to understand better the cognitive processes of nascent entrepreneurs engaged in business start-up programs informed by opportunity-related views of entrepreneurship [11].

For some time theoretical and methodological heterogeneity, pedagogical fragmentation, and segregation have been a matter of contentious debate for scholars working in the entrepreneurial field. There exists a strong belief that entrepreneurship is most suitably taught and delivered outside of business schools [12].

Developing mindsets, generic attributes and skills that are the foundations of entrepreneurship can be complemented by imparting more specific knowledge about business according to the level and type of education.

The European Commission has long supported and helped further the cause of entrepreneurship education [13]. Within the education and training agenda, the strategic framework for European cooperation, Education and Training 2020 has, as its fourth long-term strategic objective, to enhance creativity and innovation, including entrepreneurship, at all levels of education and training [14]. The Commission is continuing its support through the Europe 2020 strategy where the need to embed creativity, innovation and entrepreneurship into education systems is highlighted in three flagship programs [15]: *Youth on the Move*, an *Agenda for New Skills and Jobs*, and *Innovation Union*.

In the European intentions Entrepreneurship education can be integrated into general education in different ways: a cross curricular approach can be taken it can be integrated into existing subjects or it can be introduced as a separate curriculum subject. Where it is integrated into existing subjects, these are often optional. A best practice is the Entrepreneurial University of Wismar born o spread an entrepreneurial mindset across the faculties. *“The “Entrepreneurial University” approach aims to spread an entrepreneurial spirit and to integrate the right set of skills into study programs allowing to impact students, including those who might have not considered an entrepreneurial career path”* [16]. Moreover, although most countries explicitly recognize entrepreneurship education at least to some degree in primary and secondary education, the overall pattern of provision changes significantly from one school level to another.

At secondary level, many more countries make explicit reference to entrepreneurship education in their steering documents than they do at primary level. The cross-curricular approach is still widespread as is the integration of

entrepreneurship education into other subjects (see Picture 1). In two thirds of these countries, these are compulsory subjects. In the other third they are optional In most of the countries, the cross-curricular approach is combined with the integration of entrepreneurship education into other subjects. Unlike in primary education, some countries teach entrepreneurship education as a separate subject at lower secondary level. In Lithuania and Romania, entrepreneurship education is a compulsory subject. In Bulgaria, it is compulsory for students choosing the technology branch and in Denmark and Spain, it is an optional subject. At this level of education, the subjects areas most likely to incorporate entrepreneurship education are economics, business studies and careers education, with equal proportions of countries treating these subjects either as compulsory or as optional. Social science subjects are, however, still the locus of entrepreneurship education in many countries, with a majority of countries offering it as compulsory subject. At upper secondary level, all countries recognize entrepreneurship education in their steering documents, even if the exact term entrepreneurship is not always used. The cross-curricular approach is as widespread in upper as in lower secondary education, in around two thirds of European countries. There are, however, some differences between lower and upper secondary education. As in lower secondary education, some countries at this school level offer entrepreneurship as a separate subject in addition to other approaches. As such, it is an optional subject in all countries except Poland, where the new curriculum includes entrepreneurship as a separate compulsory subject [17].

Undergraduate education for future entrepreneurs does not have to depend on the existence of a business school or established entrepreneurship courses. The core learning relevant for an entrepreneurial life and career may not be found in a separate discipline; it may involve refocusing, rearranging, and clarifying many of the things done in a typical college or in the undergraduate offerings of any university. In fact colleges may have an advantage in entrepreneurship education because they are not oriented to preparing individuals to become employees either in terms of skills or temperament [18].

Introduced on 1st September 2009 and gradually being implemented until 2016, the new curriculum includes entrepreneurship as one of its priorities. However, for upper secondary schools, it will only come into force in the school year 2012/13. In Bulgaria, Lithuania, Austria, Slovenia, Sweden, Turkey and Norway, the subject entrepreneurship is optional or part of a specific branch. In Sweden, upper secondary education is in a process of reform and, as a result of the changes, entrepreneurship is taught as a separate subject in the economics branch from autumn 2011. In upper secondary education, more than half of the countries include entrepreneurship education in the subject area of economics, business studies and career education. However, in only a few countries are these subjects compulsory. Where entrepreneurship education has been integrated into the social sciences subject area (around a dozen countries), those subjects remain, for the most part, compulsory subjects. As you can see from the Fig. 1, Italy does not apply specific programs for entrepreneurship education.

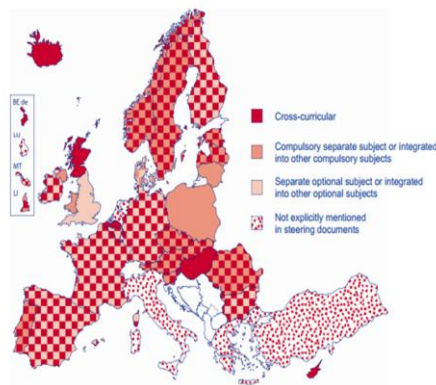


Fig. 1. Approaches to entrepreneurship education in lower general secondary education (ISCED 2), according to central steering documents, 2011/12. Source: Entrepreneurship education at School in Europe [17].

The examples that are found in this country are [17]:

- 1) National strategy: There is no specific national strategy for entrepreneurship education except for technical and vocational pathways. The simulated training firm (*Impresa formativa simulate-IFS*) is an innovative learning methodology where students can learn real work processes by simulating the set up and running of virtual enterprises, working in a network and supported by real enterprises.
- 2) Explicit integration of entrepreneurship education in steering documents, modalities and implementation guidelines: There are no specific implementation guidelines for entrepreneurship education.
- 3) Learning outcomes for entrepreneurship education at ISCED levels 1, 2 and 3: At the end of compulsory education, all students should have acquired knowledge and skills adequate to build their future learning pathways, to face adult life and build up knowledge and basic skills – including sense of initiative and entrepreneurship – as part of a lifelong learning process, also in view of their future working life.

## II. RESEARCH APPROACH/METHOD

Considering these topics, the exploratory research conducted in Ferrara and Verona Universities (Italy) totaled 1918 questionnaires completed between July 2013 and April 2014.

The research sample are university students of the following areas of study: Mathematics and Computer Science; Physical Sciences; Chemical Sciences; Earth Sciences; Biological Sciences; Medical Sciences; Agricultural and Veterinary Sciences; Civil Engineering and Architecture; Industrial Engineering and Information; Sciences of Antiquity, Philosophical, Literary, Artistic and Historical; Historical Sciences, Philosophical, Psychological and Pedagogical; Legal Sciences; Economics and Statistics, and Political and Social Sciences.

The areas of knowledge were defined by the Italian Ministry of Education, University and Research (<http://www.universitaly.it/>) through the project *UniversItaly*, created in 2012 with the aim is to simplify and support the choice of university courses of study of Italian students and their families, and to develop and promote the application by

the foreign students.

The University of Verona is divided into 15 departments, with a total of 60 undergraduate programs, 42 post bachelor courses, and 40 courses of specialization. The University of Ferrara has 12 departments, with a total of 71 undergraduate programs, 18 post bachelor courses.,

The research instrument is a questionnaire composed by 63 multiple-choices items. Items of the questionnaire were either dichotomous or five points Likert scale (Not at all, A little, More or less, Much, Very much) and inquire:

- Personal data (age, sex, educational, work experience, ...);
- Perceptions:
  - of becoming an entrepreneur in the future;
  - that the university helps in finding a job;
  - that the university helps in becoming an entrepreneur;
- Preference for work as entrepreneur or employer.

## III. RESULTS

The sample is made of 1918 students, 40% are Male and 60% are Female. The age of the participants ranges between 18 and 49 with average value of 22.92. From this total, 34% of university students are students at the University of Verona, 60% of students at the University of Ferrara, 5% null and 1% other universities.

The distribution of the sample comprises 36% of students between 18 and 21 years old, 33% of students between 22 to 23 years, 18% of students between 24 to 25 years and 13% of students between 26 and 49 years.

The distribution for study area, with the classification of *UniversItaly*, Italian Ministry of Education is: (16.1%) Biological Sciences; (13.3%) and Economics and Statistics (12.6%) Mathematics and Computer Science (see Table I).

TABLE I: THE DISTRIBUTION OF THE SAMPLE FOR AREA

Area	% the sample
Mathematics and Computer Science	12,6
Physical Sciences	1,0
Chemical Sciences	3,8
Earth Sciences	2,5
Biological Sciences	16,1
Medical Sciences	2,0
Agricultural and Veterinary Sciences	1,6
Civil Engineering and Architecture	2,0
Industrial Engineering and Information	7,2
Sciences of Antiquity, Philosophical, Literary, Artistic and Historical	4,3
Historical Sciences, Philosophical, Psychological and Pedagogical	6,5
Legal Sciences	10,7
Economics and Statistics	13,3
Political and Social Sciences	8,9
Null	7,5
Total	100

The samples is composed of 29% of working students and 71% of students study only; those who only study, 39% who have never worked and 61% who have already had some work experience.

The 78% of the sample has no experience in entrepreneurship and the 7% is made of entrepreneurs. The preference for working as an employee or to start a business, 48% has a preference for work as an employee and 52% for starting a business.

Moreover, 52% of students who have preferences for starting a business, 9.2% belong to the Biological Sciences, 7.9% to Legal Sciences, 7.8% to Economics and 6.2% for Mathematics and Computer Science. The lowest percentage of the area of the Physical Sciences with 0.05%, followed by Chemical Sciences and Medical Sciences with 1.0%.

The preference for starting a business in the years of study is as follows: 9.8% are first-year students and 16.9% of the last year of the bachelor's degree; 8.0% at the beginning of the master's degree and 7.9% last year. If the university offers services to help young people find jobs, 41.6% of responding yes and 58.4% do not. Among the courses that believe that the university helps to find work, 7.1% are of Mathematics and Computer Science, 6.4% of the Economics and 5.0% of the Industrial Engineering and Information. The students who believe less that the university helps to open up employment are: 8.1% Legal Sciences, 7.8% Economics and 6.3% of the Sciences Social Policies. On the question whether the University can help students to become entrepreneurs, the result was as follows: 42.5% do not believe that the university help to become an entrepreneur contrariwise the 57.6% believe that the university helps an entrepreneur; through the formation that offers are 25.1% and through consulting services for starting a business are 32.5%. (see Table II).

Upon completion of the course of study 12.8% of the sample would like to start a business and how career perspective.

More than 30% have an idea (more or less solid) to become an entrepreneur in the medium term (5 years) and a small group of these think adversely on this possibility (see Fig. 2).

Future potential as entrepreneur increases (over 40%) when the students see themselves in long-term scenarios (10 years) and the group of those who reject this project decreases (see Fig. 3)

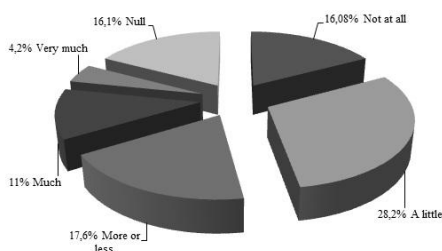


Fig. 2. I see myself in entrepreneur 5 years. Source: Original material.

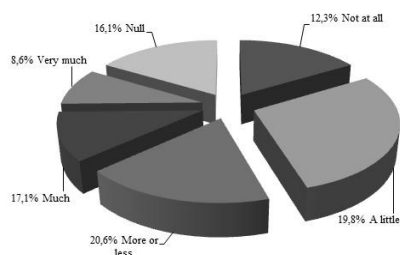


Fig. 3. I see myself entrepreneur in 10 years. Source: Original material.

Among the 51.8% of students who prefer to start a business, 29% are working students; these differences is statistically significant ( $p$  value  $< 0.01$ ).

The same relationship happens between students who believe that the university can help to find work, 29% are working students (statistically significant;  $p$  value  $< 0.05$ )

TABLE II: THE PERCEPTION THAT THE UNIVERSITY HELPS TO BECOME AN ENTREPRENEUR

Answers	% of the total number
No	42,5%
Yes, through the formation that offers	25,1%
Yes, through consulting services for starting a business	32,5%
Total	100,0%

#### IV. DISCUSSION

It is possible to consider that the promotion of entrepreneurship, in university, among young people isn't a well exploited opportunity, despite numerous requests made by the European Union to all member countries to create programs or establish actions to develop the entrepreneurial skills in young people. This is a significant loss as many studies reveal that academic entrepreneurs are significant for their country: "The study reveals that academic entrepreneurs are on average statistically significant more active in cooperation with industry in terms of consulting to companies, time spent for projects ordered by the industry and involvement in industry-related projects than before they have established their spin-off company" [19]. The main features of the analysis indicate that most part of the students is not working and part of these (39%) has never worked and only a small group (7%) of the total students is entrepreneur.

Even with a small number of entrepreneurs or students who already work, 52% of the total number of student was given preference for self-employment or entrepreneurship. *Fostering Sense of initiative and entrepreneurship* among young people has a huge development potential, since it considers the beginning of a new business or self-employment as a desirable career option, decreasing unemployment and contributing to a more competitive economy, so that the European politics will give more attention this question.

Another point of great importance is the preference for starting a business as a career option. 48% of respondents prefer to work as an employee and 52% of the sample who want to start business the most is concentrated in the first years of study and with the passing of the years in the university this perception decreases. The data suggest that the interest in protract the years of study at the University is not connected with the interest in starting a business. Is possible that this fact is connected to the university: "there seems little room in much of the academic curriculum of universities' for learning to do (and about) something by a process of repeated practice. This is due to the fact that entrepreneurs seek knowledge on a "need to know," "know how" and

“know who” basis rather than just merely the “know how” basis. All these three element of knowledge will bring forwards recognisable contextual experience to them and helps them to conceptualise and give broader meaning to their existing problems and opportunities” [20]. This idea is confirmed by a study on PhD students, University of Verona, the university policies should improve to putting more emphasis on the organization of PhD programs with courses more oriented on the growth of entrepreneurial culture and with an attitude than a career in entrepreneurial way [21], [22].

The number of students who believe that universities offer services to help young people find work is unfortunately still low (less than 42%).

The perception that the university can help young people to become entrepreneurs is a bit different last analysis, only 25% believe that the university offers an equal training to become entrepreneurs, this is a bad information as education of an entrepreneur should be based on strengthening the participant’s intention of becoming an entrepreneur [23]; the 32% believe that the university offers the provision of advisory services at the opening of business. The 58% believe that the university can help you to become entrepreneurs.

Another result to note is that only 13% of the sample expressed interest after completion of the course of study to start a business.

This percentage increases when university students respond as a perspective of five and ten years to become entrepreneurs, as to highlight the presence of a professional long-term project.

Survey results emphasizes European dates: Italian educational policies for the Higher Education are still far from European indications for education that promotes the development of entrepreneurial skills, considering the perception of university students about entrepreneurship and the role that universities have to develop entrepreneurship among young people.

Moreover, Italy at this time does not have a specific national strategy on entrepreneurship, unless through technical and vocational courses. This investigation led to the observed growing interest from students who, advancing in the path of university studies, especially in a long-term perspective. “In this context, university authorities need to recognize their core role, not only building but also enforcing the university entrepreneurship ecosystem that nurtures entrepreneurial potential (incentives, new learning tools, role models), as well as stimulating skills, competencies, and tools that are most useful in creating entrepreneurial mind-sets that drive innovation (not only inside universities but also within existing firms) and becoming entrepreneurial organizations” [24].

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