

# ENTREPRENEURSHIP EDUCATION PARADOXES

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## Abstract

Entrepreneurship education is commonly recognised as an imperative of higher education. It is seen as a transversal competence essential to be developed in all levels of education. It is a crucial competence to be integrated into the different subjects and scientific areas. Additionally, entrepreneurship is one of the possible ways of accessing the labour market, as can be seen in community directives and national policies. In practical terms, this issue poses new and important challenges to Higher Education Institutions, related to their capacity, together with other actors (economic, social, political, among others), to develop an entrepreneurial spirit and entrepreneurial culture and innovation. The academic context is an essential part of the student environment and, as such, is centrally placed to change and encourage entrepreneurship. Today, higher education institutions represent a significant factor in the transition to work by their graduates. Polytechnic education has a recognised methodology for teaching entrepreneurship and a closer relation with the business market.

In consequence, we analysed the student training paths in higher polytechnic education. We focused on the Polytechnics of Guarda, Leiria and Viseu finalists, with the behavioural tendency of other studies identified from the Polytechnics network promoting entrepreneurship. In this way, it was possible to pinpoint some territorial specificities that national studies do not present and a better redefinition of priorities identified by students about institutional processes and programs to support the promotion of employment entrepreneurship. Also, an education paradox regarding the entrepreneurial education goals of HEI was possible to be acknowledged since students claimed for a more practical and entrepreneurial type of learning. It was possible to draw some considerations on the effectiveness of entrepreneurship education and the entrepreneurship abilities of teachers and institutions.

Keywords: Polytechnic education; entrepreneurship education; skills; employment; education paradox.

## 1 INTRODUCTION

### 1.1 Education and Entrepreneurship: realities and challenges

Entrepreneurship education models generally include four objectives: i) to promote individual characteristics and skills that are common to entrepreneurs; ii) raise students' awareness of self-employment and entrepreneurship as a possible career; iii) build learning models in the real context; (iv) provide basic business skills for self-employment, creation and start-ups of a company [1].

The European Union follows the elements for entrepreneurship education and the development of entrepreneurial skills defined by [2] in their definition of educational policies for entrepreneurship [3]. It is observed that in Higher Education Institutions, the dimension of teaching-learning is generally related to entrepreneurship teaching (e.g., entrepreneurship courses, entrepreneurship degrees, entrepreneurship degrees, extracurricular activities, curriculum development and teaching methodologies) [4]. The scope and focus of entrepreneurship teaching vary according to the types of institutions and years of experience in business education and whether the focus is on entrepreneurship or business education, that is, more traditional (disciplines related to economics and social sciences) or involving fields outside higher education institutions (HEIs).

Entrepreneurship teaching in Portuguese higher education has been encouraged since the early 2000s, although the first entrepreneurship course was offered in the 1990s [5]. Later, with the renewal of higher education in Portugal, driven by the introduction of the Bologna process, since 2006, most Portuguese universities offer courses with themes specifically or partially dedicated to the theme of entrepreneurship [6].

Universities and Polytechnics (Applied Science Higher Education Institutions) continue to develop their offer and promotion of entrepreneurship, embracing this challenge with similar formats. Entrepreneurship courses that mainly offer postgraduate courses in universities have evolved into doctoral programs and

achieved adequate teacher training. Higher Education Institutions (HEIs), have been working on entrepreneurship to promote business creation. Today, there is a clear paradigm shift in which they seek to develop transversal entrepreneurial skills through various programs, including extracurricular programs, in which students are encouraged to participate [7].

The Polytechnic Institutes (IP), since the start of entrepreneurship promotion, have integrated these thematics within the scope of courses study programs, offered in different areas, such as engineering, computing, design, education, marketing and management courses, information and communication technologies (ICT), nursing or pharmacy. Entrepreneurship education is today a polytechnic project that covers the national network of this type of higher education and has a recognised methodology for teaching entrepreneurship, shared in terms of methods, content and coordination, reaching a wide range of students in different areas of expertise, to develop their skills and capacities in this area, create your own business or register new patents [7].

Teachers play a key role in the construction of goals for entrepreneurship education and their perspective has largely been ignored. The different dimensions of education, students and teachers, need to be analyzed and tested and it's time to evaluate the efforts of the teachers and their increased entrepreneurial competencies. Teaching entrepreneurship implies specific knowledge and abilities, and our experience as project developers in this area shows us that teachers are eager to acquire new competencies, new knowledge and to implement new methodologies to help their students to achieve the desired mindset [8]. It is stated that teachers' perceptions of their entrepreneurship skills are connected to the implementation of entrepreneurship education and their training in entrepreneurship [9].

Entrepreneurship teaching and the promotion of entrepreneurial skills have integrated innovative approaches and tools. These have been complemented by the classical approaches typically associated with the areas of economics and management with new concepts in the field of innovation and creativity, where multidisciplinary, in the projects that result in this way, arises naturally, bringing together various fields of knowledge. This entrepreneurship brought to the surface more disruptive business models, development of new products and services, approaches to new markets or the re-creation of existing markets [10].

These innovative education tools and pedagogies represent a challenge to HEI teachers. Teachers with longer careers, that not have changed their materials for several years have more difficulty in turning to entrepreneurship because it implies dealing with new challenges and contexts embodied with uncertainty [11]. Not only the teacher's individual competencies (e.g. networking skills and teamwork skills) will impact the adoption and transference effectiveness [11, 12] of entrepreneurial behaviour and mindset but also the entrepreneurial environment where teachers performance has a direct effect on the teacher's engagement ability. Particularly career adaptability, and creative thinking were strongly related to entrepreneurial behaviour [11].

The evolution of Entrepreneurship Education in Portuguese higher education allowed the implementation of numerous business activities. Universities and polytechnics not only have their own accelerator program or incubation/acceleration spaces, co-working spaces but are also part of an entrepreneurial ecosystem that seeks to provide support in their business plans that entrepreneurial students need [7].

In Portugal, there is a great development in the area of business education, but there are still some problems that are being addressed through the development of educational policies and cultural changes, since Portugal clearly has a culture that is not favourable to entrepreneurship due to the difficulties of the uncertainty of the future, assuming risks and perceived difficulties to overcome in the course of the creation of companies [13]. In this sense, the understanding of the factors that motivate entrepreneurial behaviour is fundamental to analyse if the competences development is recognized by the students as transversal skills and if their development is influenced by the higher or lower context motivation to business creation.

## **1.2 Entrepreneurship motivation**

Whether by necessity or by an opportunity to decide to undertake, from the perspective of business creation, the motivations can be various and the way we view them and deal with situations (personality) also [14]. There are several motivations to undertake and it is common that many of them are related to the family environment of the entrepreneur. Several authors [16, 17, 18] pointed out that individuals from a family nucleus with a business tradition are more likely to develop entrepreneurial activities. Thus, not only is the prospect of making money a determining factor in creating a business as previously thought [19, 20, 21, 22]. Today [23, 24, 25] argues that the desire for independence and autonomy, the

development of new skills in a given business area, the need for personal fulfilment, recognition by society, security and the opportunity to create jobs for members of their family, are motivations for the decision to undertake.

In personal motivations and personal factors for entrepreneurship, students of polytechnic education Portuguese value, to a large extent, the issue of learning [26]. The less valued aspects concern family status and prestige, respect on the part of friends, indirect profits such as tax exemptions, maintenance of family traditions or reduction of the tax burden.

### **1.3 Entrepreneurial competences**

Entrepreneurship today is considered as a transversal competence (personal development; active participation in society; (re)entry into the labour market as an employed or self-employed person; and the beginning of new cultural, social or commercial ventures), the Reference Framework for the development of entrepreneurial skills of Bacigalupo, Kampylis, Punie, and Van den Brande (2016), defines entrepreneurship as the creation of cultural, social or economic value.

EntreComp serves as a basis for the development of curricula and learning activities that promote entrepreneurship and allows evaluating the entrepreneurial skills of individuals and groups (whether teams or organizations) [27]. This model in its most recent representation identifies three areas of competence interrelated and interconnected: (i) ideas and opportunities; (ii) resources; and (iii) in action [28]; which together are the pillars of entrepreneurship as competence to be developed in a transversal way, representing the transformation of ideas and opportunities into action through the mobilization of resources (personal, material or non-material).

It is a flexible model adaptable to different educational objectives seeking to facilitate learning and seeking to facilitate employability and active participation in society and the economy [27, 28].

## **2 METHODOLOGY**

The polytechnic entrepreneurship education and the efforts made by the institutions to promote entrepreneurship as transversal skills seems to be influenced by the ability of the institutions on being entrepreneurs in themselves, with a flexible model of education. To achieve it the teacher's entrepreneurs competences to be more innovative and flexible and therefore transfer their entrepreneurial behaviour and abilities to the students, besides the programmes contends, is crucial as they are the key o knowledge transfer. Even if the competences development might be influenced, also, by the student's personal motivation.

This study is part of a broader analysis made within the project "Formative path, transition to work and entrepreneurship: perspectives on Polytechnic Education in Portugal", that pursued the identification of the national socio-geographic and institutional dichotomies that characterize the Portuguese higher education system and social and economic context. Consequently, this project includes three Polytechnic institutions - Viseu (IPV), Leiria (IPL) and Guarda (IPG) – different in their dimension, region and context. To collect the data needed to answer our research goal (flexible entrepreneurial education within the characteristics that are recognized in the Portuguese Polytechnic Education system).

As a data collection method, the survey (online survey) was chosen to be able to reach more students of the three institutions, target the finalists, so they already have the perception of the institutional organization and the learning and teaching practices. Besides the characterization and general variables (gender, age, academic training attended, social origin and institutional framework) we preferably used the Likert scale [29] to observe the perceptions about academic training (curricular structure, evaluation and curricular contents), and the role played by the development of skills for entrepreneurship during this formative process. It was also allowed students to express their individual opinions and make proposals for entrepreneurship education improvements.

The results reflection also had to enhance any regional differences and comparison to the national studies recently developed. In this way, we seek to establish analytical parallels that make the connection between academic education and entrepreneurship competences promotion, in Polytechnic institutions.

It was collected 655 valid questionnaires, with a random sample and non-probabilistic, in all three IPs. The statistical analysis was developed through SPSS software and the categorization of the open questions were defined accordingly with the assumptions established by [30, 31].

### 3 RESULTS

The result analysis began by assessing the student’s motivation for business creation was part of their life project when applying to this type of HEI and if they feel if the academic training attended, particularly regarding the curricular structure, curriculum, evaluation and if the courses prepared them for the labour opportunities.

Only 15,9% of the students admitted their intention of business creation when choosing this type of academic education. The respondents were from Metallurgy and Metalmechanics (26,7%) Civil Engineering (66,7%) and Accounting (61,9%). They were also in their majority with 40 years old (26,3%) and male (22,7%) which has a significant message since, from the 655 students inquired, only 27,6% were male.

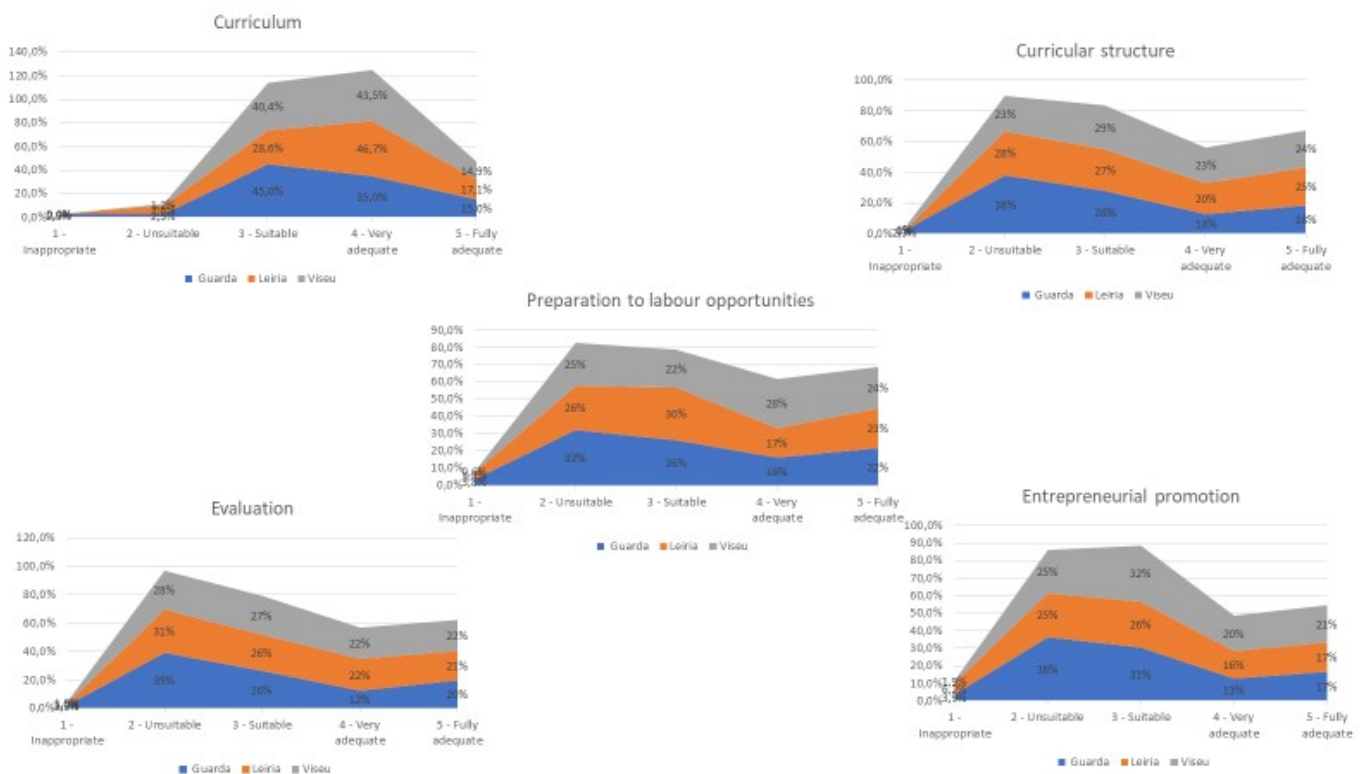


Figure 1 - Curricular structure, curriculum, evaluation and labour preparation perception accordingly with the different IPs

Specifically, regarding curricular structure, curriculum, evaluation, labour preparation, as seen in figure 1, the majority of the inquired students answered that the curriculum was “suitable” or “very adequate”, with a very low number, and only at IP Guarda classified it as “inappropriate”. But regarding the other elements, we may observe that the opinions are more diversified even though the majority answered that curricular structure, evaluation and labour opportunities preparation was “suitable” or “very adequate”. Particularly the “entrepreneurial promotion” and “evaluation” are more heavily less positively classified. Is important the enhance that the data collected about the curricular structure has a bigger weight at IP Guarda. Overall, at the three IPs, 27,9% of the Students considered the curricular structure “inappropriate” particularly from Marketing and Advertising (40,9%), Sport (34,5%), Management (35,8%), Electronic and Automation (43,1%), Tourism (47,1%), Metallurgy and Metalmechanics (40%) and Biology and Biochemistry (40%). These respondents are also older (24-30 years 37,6% and 36,4% more than 40 years old). And this answers trend is maintained in all the other elements analysed although the “preparation for labour opportunities” express a more balanced classification.

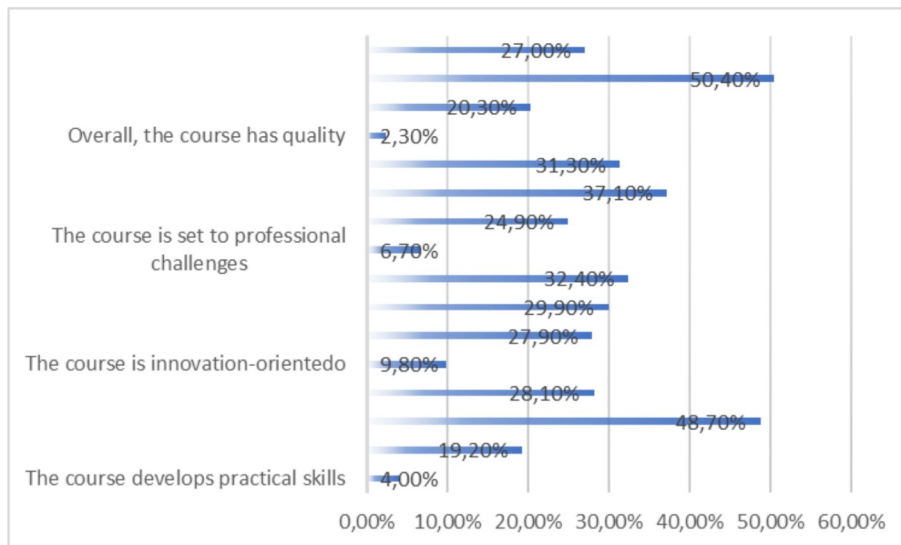


Figure 2 – Students perception of the professionalized learning acquired

As shown in figure 2, the students think that their academic training has quality (50,4%) and has a practical approach. However, 28,1% of the respondents, males and over 24 years old, do not answer or do not know.

When differentiating by IP the results show at IP Guarda, 42,7% of the students have more assertive answers, with more relevance in the same courses mentioned above (Marketing and Advertising - 44,9%, Sport - 31%, Management - 40,3%, Electronic and Automation - 39,2%, Tourism - 35,3,1%, Metallurgy and Metalmechanics -53,3% and Biology and Biochemistry - 46,7%). Even though they do not show a negative opinion, the majority show a neutral opinion.

When the students were asked about their opinion on the innovation orientation of the course, or if it's set to the professional challenges, we continue to observe an overall neutral opinion, despite the more relevance given by IP Guarda students, particularly of the male and over 24 years old students.

So, we conclude that regarding the more functional and institutional opinion students are more critical regarding the curricular structure and courses evaluation, particularly the older students e from specific scientific areas. This reveals an attitude of increased disaffection /ignorance in the overall evaluation postures of the courses. Overall, the IP Guarda students have a more assertive and critical opinion than the registered at the other IP.

As we aimed to explore the entrepreneurial perspectives of the finalists, by attending a polytechnic education that has a stronger professional and technical approach and to verify what the role of educational institutions in this process should be in their view, the student's finalists were directly asked whether the IP's should promote more intensely the process of transition to work and, inherently, entrepreneurship, asking the students to justify their opinion.

It was found that 87.8% of the respondents assumed that yes, and this attitude is consensual between institutions, courses, gender and age groups. However, most do not specify effective ways to materialize it, only 26.8% do. These attitudes may reveal an inability to materialize a recognized need and/or ignorance/disinterest in how institutions may improve at this level in the future.

Regarding the proposals presented, there are issues such as promotion of connection with the labour market (26.1%), more practical education (27.3%, protrusion for IPV students 33.8%), curriculum restructuring (30.6%, protrusion for IPG students 41.4%, revealing consistent with the most critical postures presented in the previous point) and support for employment and entrepreneurship (15.9%, ipl with 20.7%). Interestingly, there were no major discrepancies between areas of academic training, age or gender, and these positions are transversal. However, the variable educational institution reveals, here, analytical relevance, the students of the IPV more strongly refer that more practical teaching should be implemented, the students of the IPG focus more on proposals for curriculum restructuring and finally the students of the IPL stress the importance of promoting more support for employment and entrepreneurship. The promotion of the link with the labour market is consensual, and there are no distinctive stances on this issue.

Regarding the restructuring of the curricular structure, the following opinions and proposals are objectively highlighted: "curricula and contents closer to the real needs of the labour market; internships in all courses and dispersed throughout the various years of the courses; disciplines and pedagogies more practical; promotion of extracurricular activities and integrated master's degrees".

As regards more practical teaching, the finalists refer, fundamentally, to issues such as: "time extension of traineeships; development and applicability of projects in companies; increased investment in equipment closer to those used at the business level; workshops and more partnerships with companies".

In terms of promoting links with the labour market, they specifically stress: "promotion of employment fairs; entrepreneurship competitions; connection with former students; lectures/seminars/conferences; partnerships with companies" and regarding the operation of the courses the "flexibility of school schedules/activities and teaching support; greater follow-up of internships".

Finally, in terms of supporting employment and entrepreneurship, they highlight the "creation of physical/online spaces for the exhibition/dissemination of work and entrepreneurial skills of students as a way of promoting skills and job offers; institutional post-course monitoring and promotion of professional internships".

In view of these data, we can affirm that, despite the high rate of non-response, the finalists who actually did so reveal a heterogeneity, depth and scope in their proposals, revealing, nevertheless, a clear awareness/knowledge of what can and should be done, at the level of higher education, during and after the completion of the courses, promoting the process of transition to the labour market, and entrepreneurship. At this level, age, gender, course and social origin do not reveal to be inhibitory and differentiating factors of this awareness of the work and formative reality.

#### **4 DISCUSSION AND CONCLUSIONS**

When we look at the results a difficulty of interpretation occurs since the students seem to not reflect enough to express an opinion on the specific problems that are identified in their institutional and functional perception.

Despite the noticeable increase in infrastructure investment (e.g. incubators, interface units, coworking spaces, innovation support and development laboratories, entrepreneurship support offices), more intense and strategic relationships with the business sector, local authorities and other external entities or stakeholders with a view to problem-solving, reducing unemployment and creating products and services with added economic and social value, the students continue to pinpoint the lack of connection especially with the business sector, stressing that internships should have another dimension and configuration: "time extension of traineeships; development and applicability of projects in companies; increased investment in equipment closer to those used at the business level".

The participation of different external stakeholders in the development of HEI was also notorious, although it is not yet frequent practice to hire effective experts in the area of entrepreneurship. Indeed, this collaboration is most often done gracefully. Training for the creation of companies is offered in some curricular units of certain HEIs, and it is necessary to democratize this offer. It was consensual and unanimous the appreciation of the development of entrepreneurial skills in students. However, in some cases, it was evident the inability of teachers to respond to the challenges posed by students, due to the lack of availability of time for this purpose, due to the numerous pedagogical (and even administrative) activities to which they are affected. This begins to arise a paradox in entrepreneurship education since the teachers play a crucial role by example and through the pedagogic and tools they can integrate into the classroom.

It was also clear the commitment and effort of the HEI in creating conditions to help develop entrepreneurial projects and to support students to start their own business. However, the number of teachers available and qualified to do so proved to be largely insufficient. As already mentioned, the involvement of teachers is obtained much at the expense of their individual availability, noting an overload of those with skills in this area. Again, the entrepreneurship paradox has here an expression. Teachers receive training but suffer from many constraints to then implement and innovate in their classrooms. Many students continue to get support for their projects mainly through the Poliemprende brand. Some of them are supported and have access to specific training in the area of business creation and obtain support and support, from the conception of the entrepreneurial idea to its realization. The need to professionalize and value this activity to support entrepreneurs was evident.

This reality contrasts with the reference of the finalist students of this study on the lack of more intense monitoring of internships and projects, arguing that this factor should happen even after the terminus of their academic training, highlighting the "creation of physical/online spaces for exhibition/dissemination of work and entrepreneurial skills of students as a way of promoting skills and job offers; institutional follow-up after courses". It is recalled that according to the EC/EACEA [1] should be awarded academic credits for practical work in business projects, this issue reinforces the importance of curricular internships and externalizes the need for greater institutional support to promote entrepreneurship and transition to work. This situation may also be due in part to the overwork of teachers.

With regard to teachers, we can observe that there is a set of players who are involved in the entrepreneurial process and who are ambassadors of excellence in entrepreneurship and its added value. And there are also those who belong to the group that does not intervene and who need greater knowledge about the project and its dynamics, which can be stimulated by peers and/ or by top management. It is clear the evolution of the attribution of institutional importance in this theme, both for the results of the project itself, as well as by the European and national strategy for promoting teaching for entrepreneurship, with which this project is aligned.

Although this analysis has not obtained the opinion of the teachers, the students themselves assume their importance in this process in the context of formative evaluation and more specifically in their role in promoting entrepreneurship. It should be emphasized that they state that there should be a greater "flexibility of teaching schedules/activities and teaching and follow-up of internships" or even an "institutional follow-up after courses or promotion of professional internships", where the role of teachers and/or mentors could be fundamental. It is recalled that it is common, in several developed countries, that partnerships of an entrepreneurial nature between students and teachers developed in the context of academic training, continue at the business level after the students finish their courses, going out of the institutional aspect that conceived it.

With regard to the exchange of knowledge between HEIs and companies or external entities, we note, in the different IPs/Schools participating in the Poliempreende project, a great commitment and sharing of knowledge with industry and other companies, municipalities and civil society in general. It is this effective creation of collaborative networks that foster and nurture innovation and entrepreneurial education. This strategy is felt as very positive in local contexts, notably by the possibility of direct application and exploitation of knowledge generated in academia, with clear benefits in terms of social, cultural and economic development. In our case, we can see that there is confirmation of these attitudes, the respondents argue that this link, especially between HEIs and companies, should be more intense, especially with the "development of projects; greater number of partnerships and greater investment in equipment closer to those used in the production process at the business level."

The emerging subcategories of the content analysis of the interviews validated the concern with teaching for entrepreneurship as a way of preparing for the labour market and creating self-employment, with a view to establishing a synergistic business ecosystem in national terms. One of the reasons for better preparation of students participating in the Poliempreende project is the greater involvement of regional and national entities, namely companies, agents of the economy and society, as well as other entities of the business community, regional and governmental, which strengthen and enhance the entrepreneurial ecosystem that this project promotes through its networking, preparing for the labour market and creating self-employment.

This issue, from the perspective of the students, was partially confirmed in our analysis, in particular in terms of the heterogeneity of proposals put forward in promoting entrepreneurship and supporting the transition to work by the finalists. We highlight the reference of the need for greater inclusion of companies in the training process, as a way to enhance the entrepreneurial aspect of students and allow the materialization of projects that promote self-employment and creation of business ideas during and after the completion of higher education courses.

As for the ways of promoting entrepreneurship and transition to work, the Poliempreende Project refers to the pertinence of entrepreneurial learning through experimentation and development of business plans that integrate students in business contexts as close as possible to the work reality. We have seen that the finalists support these issues, in particular by referring to the need for more practical teaching, consistent with the characteristics and requirements of the business fabric, namely greater proximity to the actual conditions of employment. even highlighting the reference to the temporal extension of curricular internships, support in the promotion of professional internships or even greater adequacy between technological resources used during academic training and those actually used by the business fabric.

It should also be added that the data collected allow establishing a correlation with that already verified in previous studies [32], the need to create platforms, mechanisms and infrastructures (e.g. incubators, offices and consultants) that allow the materialization and implementation of entrepreneurial ideas and projects, specially developed in the field of academic training, as well as at the level of specific curricular units, as well as in the direct or indirect consequence of the realization of curricular internships. In this context, we can also highlight the reference to the importance of the existence of financial support in the transition from ideas/projects to practice and at the level of teaching and learning the need for greater investment, in the content of disciplines, in the areas of entrepreneurship, promotion of extracurricular activities or even the sharing of knowledge and experiences with former students, organizations/entities of a public or private nature. All these issues, more objectively or more comprehensively, are evidenced by the finalists as central aspects in promoting entrepreneurship by the three IP's under analysis (creation of mechanisms to support entrepreneurship; paid and longer internships; more practical and approximate teaching of the needs of the labour market; promotion of professional internships; institutional follow-up aftercourses).

Taking into account the identity of polytechnic education as vocational education, it is verified that this effort to promote business ideas that allow its transposition to and in the work reality will have to be continued, as a way of adapting this type of education to the new requirements and challenges established at European level. The responsibility in this process of curricular internships, one of the most distinctive characteristics of polytechnic courses, is central, and it is a unique basis of work of contact with entities outside the educational institutions for the implementation of the most practical knowledge that should be developed by these higher education institutions.

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