

EHIS Method©: Entrepreneurship Human Interaction Skills

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Abstract: The purpose of this paper is to describe the *EHIS Method©* (Entrepreneurship Human Interactions Skills), an innovative entrepreneurship teaching and learning method developed and used at the Entrepreneurship course at Portucalense University (UPT), a private higher education institution in Portugal. EHIS Method© draws on insights from the recent literature on entrepreneurship education and is applied to teach Entrepreneurship in several study programs at UPT, such as Psychology, Social Education, Tourism, Economics, Law, Management, Informatics, Management and Information Systems and Hospitality Management. The students are grouped into teams and challenged to develop an entrepreneurship project, which consists of four different steps: (1) the idea discovery/generation; (2) from the idea to the business model; (3) from the business model to the business plan; (4) from the business plan to the preparation of the application to the Net UPT (business incubator of UPT). Throughout the EHIS Method©, students have to successfully go through a variety of assessment elements, held at different times, encompassing different activities and skills and involving different types of evaluators: (a) teachers/mentors; (b) university professors and (c) potential investors.

Keywords: entrepreneurship education, human interactions skills, entrepreneurship skills, teaching and learning approaches

1. Introduction

Today, in addition to the two traditional missions of research and teaching, universities are expected to play a 'third mission' (Etzkowitz *et al.*, 2000). This third mission is linked to economic development and involves knowledge transfer to society and is closely linked to innovation and entrepreneurship. Some scholars even talk about entrepreneurial universities (Kirby, 2006) and consider them as a pillar of the knowledge-based economy (Breznitz *et al.*, 2008). Entrepreneurship education is therefore increasingly central in the curricula of higher education institutions (HEI). In recent years, the authors of social cognitive theory of career have been explaining the influence of academic experiences at HEI in various aspects of vocational development (Costa-Lobo, 2011; Costa-Lobo and Ferreira, 2012) emphasizing that academic experiences are a source of relevant information in the process of constructing meaning the role of modeling, evaluation, performance and merit, contributing to the development of higher education students vocational interests and values. Not surprisingly, we witness a recent explosion in the number of papers on entrepreneurship teaching in HEI. However, there is no consensus about the most appropriate teaching models for entrepreneurship (Fayolle, 2013), or about the ways to assess the impact of entrepreneurship courses (e.g., measuring it in educational terms through the impact on students skills or on the number of start-ups funded by alumni) (Gibb, 2002). Thus, more research is needed on how entrepreneurial learning can be effectively promoted (Phan *et al.*, 2009; Politis, 2005; Rae, 2000).

This paper sets out to describe the entrepreneurship teaching method developed and used at Portucalense University (UPT) - Entrepreneurship Human Interactions Skills (*EHIS*) Method©. This method focuses on the development of skills that are nowadays invaluable in the labour market (preparing students for working life more than for the creation of new companies). It is then in line with Täks *et al.* (2015), who stress the role of entrepreneurship education to develop individuals who understand entrepreneurial processes and have entrepreneurial skills and ways of thinking; and acknowledges that our society is experiencing notorious changes in work organization, partly due to the facilitation of the morphologies of cooperative work, based on human interaction skills (Azevedo-Lobo *et al.*, 2017), replacing, in many cases, the traditional organization (Dinis-Carvalho *et al.*, 2017; Fernandes *et al.*, 2017). These skills are not usually addressed in most curricula of higher education undergraduate courses.

2. Background: Changes and challenges in entrepreneurship education

As is implied in the introduction, currently entrepreneurship is considered important for economic development and is increasingly included in the curricula of undergraduate and graduate courses (Kuratko, 2005). This is not only linked to the creation of new business, but essentially to the development of attitudes, skills and actions that are critical to the development of an entrepreneurial mindset (Neck and Greene, 2011). The uniqueness of entrepreneurial education is already established in the literature (Gibb, 2002, 2006; Politis, 2005; Rae, 2000). In fact, many scholars now agree that traditional pedagogical approaches are insufficient to adequately develop entrepreneurial skills and mindsets. Traditional approaches fail to: i) deal with the complexity and uncertainty of the entrepreneurial process (Higgins *et al.*, 2013); ii) prepare students to think like entrepreneurs and to mobilize entrepreneurship skills and attitudes in their jobs, even when they do not become entrepreneurs (Rae, 2010; Solomon, 2007).

This calls for a theoretical and pedagogical change in entrepreneurship education (Kuratko, 2005; Leich *et al.*, 2012; Pittaway and Cope 2007;). Extant research provides very useful insights about: i) the most appropriate learning environment and teaching and learning practices; ii) the most relevant skills to be promoted.

Regarding the learning environment and the practices, entrepreneurial education needs to encourage creativity and innovation and promote the emergence of new ideas (Kuratko, 2005). Learning approaches should include learning by doing, learning by experimenting, learning by coping, learning by interacting, project-based learning, learning from mistakes in a group context (Lourenço and Jones, 2006; Gibb, 2002, 2006; Higgins *et al.*, 2013; Pittaway, 2004; Pittaway and Cope, 2007; Rae 2003; Rasmussen and Sørheim, 2006; Stumpf, Dunbar and Mullen, 1991).

Thus, the learning environment should promote participation, problem solving and decision-making, reflection and interaction (through teamwork and networking). It should also promote teamwork between individuals with different backgrounds, because the diversity of trajectories can lead to a larger portfolio of competences (Nicolaou and Birley, 2003; Baron and Shane, 2005) and joint decision-making among actors with complementary competences is 'a valuable social and cognitive heuristic' (Grandori and Giordani, 2011: 39). Moreover it should include interactive events, like seminars, pitch competitions and business plan competitions, which put the students closer to active experimentation and real life situations and enable to build bridges with learning networks outside the education environment (Deakings and Freel, 1998; Elfring and Hulsink, 2003; Erkkilä, 2000; Heikkinen *et al.*, 2016). Regarding the entrepreneurial skills, previous research on entrepreneurship and entrepreneurship education stresses the role of soft skills to the success of the entrepreneurial process, both in terms of opportunity discovery/generation and of its exploitation.

Shane (2003) defines entrepreneurship according to the 'individual-opportunity nexus'. In his view the entrepreneurial activity depends upon the interaction between the opportunities' characteristics and the entrepreneurs' characteristics (personality factors, assessment of risk and skills to organize the processes of discovery, evaluation and exploitation of opportunities). The process has several stages/activities to be performed and some critical junctures (Vohora *et al.*, 2004). Entrepreneurs need skills to discover (Baron 2006; Shane 2000) and/or generate (Krueger 2000; Sarason *et al.*, 2005) the opportunity, to identify, gather information and analyse several sources of new ideas and factors that shape their feasibility (e.g. trends and changes in demand, scientific and technological environment, culture, society, demographics, politics and regulation), to evaluate their success, to develop them and to overcome the critical junctures. Entrepreneurial mindset and skills will therefore include, for example, ability of identifying opportunities, creative thinking, problem-solving, autonomy, negotiating, argumentation, thinking strategically, becoming persistent and more resilient to failures (Cope 2003; Kuratko, 2005; McMullan and Long, 1987; Neck *et al.*, 2014; Pittaway 2004; Rae 2007; Täks *et al.*, 2015, van Gelderen 2010). Additionally, entrepreneurship is increasingly regarded as a social process embedded in social structures (Costa-Lobo, 2011; Sousa and Fontes, 2012). One of the most important results of the project-based approaches to learning, strongly recognized in the literature (e.g., Costa-Lobo, 2011) is the development of students' human interaction skills. This view assigns a pivotal role to social capital and to networking in the entrepreneurial process, which can be a complex process requiring the combination of several technological and non-technological competences and resources (Autio 1997; Mustar *et al.*, 2006). These are often external to the entrepreneurial team and distributed across a multiplicity of actors. Networking is therefore a central skill in the entrepreneurial mindset, acting as facilitators in the process of information and

resource gathering and in the learning process (learning by interacting). Furthermore, entrepreneurship is frequently a team effort and therefore teamwork skills become central.

3. The Entrepreneurship Human Interactions Skills (EHIS) Method®

3.1 The context

This paper describes a method developed and used at Portucalense University (UPT). UPT is a private institution of higher education, certified by ISO 9001, recognized by the Portuguese Government and by the Portuguese Agency for the Evaluation and Accreditation of Higher Education, located in the city of Porto, in the north of Portugal. The entrepreneurship course is part of all Bachelor degree programs, namely Economics, Management, Hospitality Management, Management and Information Systems, Informatics, Psychology, Social Education, Law, Solicitor and Tourism. The course was introduced in the academic year of 2014-2015 and aims at developing entrepreneurial skills both at technical and soft levels. To successfully develop Entrepreneurship knowledge, skills and attitudes amongst higher education students at UPT, an innovative teaching and learning method was implemented: The Entrepreneurship Human Interactions Skills (EHIS) Method®. Its philosophy, phases and pedagogical practices draw on the literature insights mentioned in the previous section. The data obtained by Fernandes *et al.* (2017) allows to conclude in general that the pattern of findings of EHIS Method® evaluation is favorable, the results are very encouraging supporting initial hypothesis that EHIS Method® significantly enhance human interaction skills without requiring any change to prior degree curricula.

3.2 The learning environment

UPT's entrepreneurship education is understood in a learning environment characterized by the following properties:

- Participatory: a student centered approach where they are actively engaged in the learning process, using learning-by-doing and experience-based approaches;
- Problem-solving oriented: using a problem-based approach students are challenged to develop an entrepreneurial project;
- Collaborative: using a learning by interacting approach students work together in teams to develop the project and solve-problems; they interact with other stakeholders in the entrepreneurial process;
- Multidisciplinary: the course is organized in transversal classes to all bachelor degree programs and teams should integrate students from at least two different knowledge fields.

3.3 The phases of the method

The EHIS Method aims to provide the students the experience to identify and exploit an innovative business idea and develop a project. This experience is facilitated and boosted by a teacher/mentor, using several different pedagogical practices and learning activities (seminars, pitches, talks, etc.) divided amongst a total of 17 sessions during one semester. The outline of the method is presented in Table 1. The method starts (stage 1) with two lecturing sessions to provide students with knowledge on the different types of entrepreneurship and the Canvas model. At the end of this stage the students constitute different project teams. In stage 2, a mentoring and brainstorming session, each team is challenged to discover/generate and develop an innovative business idea that demonstrates the economic and financial viability to compete successfully for the Net UPT incubator, and therefore that proves to be a business opportunity. In stages 3 and 4, there are eight mentoring sessions, of 180 minutes each, where the teams are assisted in the design of the business model (stage 3) and plan (stage 4). The teams must reflect in the following questions:

- Does the idea address a relevant, frequent, and weakly solved problem?
- Does the idea present a different way of solving the problem?
- Does the team have a consistent business model?
- Is there a plan to learn about uncertainties?
- Could the idea have an interesting economic outcome?

Table 1: Outline of the **EHIS Method** at UPT

Stage	Name	Pedagogical practices and activities	Objectives	Deliverables	Nr of Sessions & Duration
1	Concepts and Method	Lecturing	To provide students with knowledge on the different types of entrepreneurship, the challenges of the entrepreneurial process and the Canvas model approach.	Group formation	2 sessions (180 min each)
2	Idea Generation	Mentoring Brainstorming	To identify sources of innovative ideas and business opportunities. To go from the idea to the business opportunity.	Idea	1 session (180 min)
3	Business Model design, communication and validation	Mentoring Seminar Pitches	To develop the business model using the adopted method in order to go from the opportunity to a business model with economic, financial and technical feasibility. To present and defend a business idea and a business model. To reflect from comments and criticisms of an evaluation Committee. To interact with external individuals and organizations.	Business model canvas Press release	4 sessions (180 min each) 2 pitches 1 seminar (120 min)
4	Business plan development, communication and validation	Mentoring Seminars Pitch Outdoor validation	To validate a business model. To reflect from comments and criticisms of an evaluation Committee. To structure and write a business plan. To present and defend a business plan before potential investors. To interact with external individuals and organizations.	Business plan Press releases	4 sessions (180 min each) 1 pitch 2 seminars (120 min each)
5	Preparing for incubation	Counseling	To reflect from comments and criticisms of an evaluation Committee. To write and submit an application to an incubation program, namely at NET-UPT.	Application	1 session (180 min)

In order to promote networking with and learning from external stakeholders, namely entrepreneurs, consultants, investors, in stages 3 and 4, seminars are organised (Table 2). Students are required to write a press release on the different topics/themes explored in the seminars. This task will be assessed (Table 4) in terms of: clarity, objectivity, relevance, suitability, added value, lack of spelling and grammatical errors, lessons learned that will help in consolidating the idea, the design of the business model and its business plan and project investment.

The method also considers three Pitches (Table 3) in order to promote active experimentation closer to real life situations. In the first two Pitches (stage 3 of the method), each team is assessed in terms of clarity, objectivity, quality of communication, self-confidence, creativity of the idea, content of the business model and

argumentation about the options included in the business model. In the last pitch (stage 4), the teams are assessed differently. The criteria are the clarity and objectivity of the "business-product-service-idea", the potential of the "target public-customers and competitors", the required investment and its return, the consistency of the team and the control of the business.

Table 2: EHIS method - seminars in the academic year 2016-2017

Seminar	Title of the Talk	Invited Speakers (Individual/Organization)
Seminar 1	"Being a young entrepreneur"	Venture Capital Organization + 2 young entrepreneurs
Seminar 2	"How to write a Business Plan"	Business Planning Specialist
Seminar 3	"Pitch is the time to sell your project to potential investors"	Bank

Table 3: EHIS method - pitches

Pitch	Objectives	Evaluators
Pitch 1	To validate the viability of the idea and its chosen business model;	Course's Teachers/Mentors
Pitch 2	To design and draft a business plan;	UPT's Teachers from three different departments
Pitch 3	To defend the business plan with potential investors	Invited Potential Investors

In the last session (stage 5), the teachers/mentors will advise the students throughout the application process to NET-UPT. Students will prepare a draft of the application project, which is evaluated according to the following criteria: the economic and technical viability of the project; the degree of innovation of products, processes and services; the analysis of the market, of the competition and of the critical success factors; the impact of the project on the socioeconomic development process of the region and the country; and finally, the internationalization potential of the business.

3.4 Transversal skills and student's assessment in the EHIS Method

Student assessment in the EHIS Method resorts to a wide range of element that aim to achieve the expected learning transversal skills of the students. Table 4 presents a list of assessment elements that are included in the EHIS Method and when they are implemented throughout the semester. It also shows the evaluator and the weight that each of these components has in students' final grade. In general, it can be seen that assessment strategies are aligned with the student centered approach in which the EHIS Model is grounded, as students are provided with several opportunities (milestones) to present their work and get feedback from teachers, mentors or external stakeholders. This also means that student assessment is not solely concentrated in a certain period of time, such as an end-of-period examination, usually common on traditional learning contexts. In the EHIS Method, each session provides inputs for monitoring and assessing student learning, in line with the principles of formative assessment (Black & William, 1998) and a more active role played by students in project-based learning environments (Fernandes *et al.*, 2012).

Table 4: Assessment activities included in the EHIS Method in the academic year 2016-2017

Phase	Activity	Facilitator(s)	Weight in the final grade	Assessment element	Transversal skills
1	Lectures on "The Entrepreneurship Perspective" and on "Canvas Model approach"	Teacher/Mentor	2%	Participation	Critical thinking
2	Mentoring session for idea generation	Teacher/Mentor	2%	Participation	Creative thinking, teamwork, problem-solving, opportunity identification and generation, leadership, research, argumentation

Phase	Activity	Facilitator(s)	Weight in the final grade	Assessment element	Transversal skills
3	Seminar "Being a young entrepreneur"	Invited speakers	5%	Press release	Creative thinking, teamwork, problem-solving, communication, critical thinking, leadership, argumentation, strategic thinking, resilience, networking
	Mentoring sessions for business model design	Teacher/Mentor	8%	Participation	
	Pitch	Course teachers	15%	First Pitch	
	Pitch	UPT's teachers	15%	Second Pitch	
4	Seminar "How to write a Business Plan"	Invited speakers	5%	Press release	Creative thinking, teamwork, problem-solving, communication, critical thinking, leadership, argumentation, strategic thinking, resilience, networking, working under pressure, negotiation, time management
	Mentoring sessions for business plan design	Teacher/Mentor	12%	Participation	
	Seminar "Pitch is the time to sell your project to potential investors"	Invited speakers	5%	Press release	
	Pitch	Invited investors	15%	Third Pitch	
5	Counseling session for application preparation	Teacher/Mentor	20%	Application draft	Teamwork, critical thinking, communication, strategic thinking, working under pressure, synthesis capability

In the academic year 2016/2017, 171 students were enrolled in the Entrepreneurship course. Table 5 summarizes the most significant and successful projects and the composition of the teams in terms students' Bachelor degree area.

Table 5: EHS method - student entrepreneurship projects in 2016/2017

Team	Project Title	Student's Bachelor Degree / Number of Students
Team 1	Cork cup	Management
Team 2	Retractable electrical outlet	Management
Team 3	Easy health	Management
Team 4	Pop Clean	Management
Team 5	Trip 4 you	Management
Team 6	Glasses 3D – Lendsdimension	Tourism and Management
Team 7	Shrimp peeler	Economics
Team 8	I98	Management
Team 9	Ecotray	Economics
Team 10	Virtual Fashion	Management
Team 11	Pharma Express	Management
Team 12	SOSme	Solicitor
Team 13	Better Life	Solicitor
Team 14	Aidu4you	Management
Team 15	Bip Bip	Social Education and Management
Team 16	Ideallbox	Social Education and Management
Team 17	Eazzzy Rider	Management and Economics
Team 18	STM	Management
Team 19	Lapicanna	Management and Law
Team 20	Carfé	Law, Management and Tourism
Team 21	Poupa Rápido	Informatics, Management and Tourism
Team 22	Icewave	Law, Management and Tourism
Team 23	Iuris Notify	Law and Tourism
Team 24	True Care	Law
Team 25	Estagi@	Informatics and Tourism
Team 26	AEIOU Juridico	Law

Team	Project Title	Student's Bachelor Degree / Number of Students
Team 27	On Ticket	Law
Team 28	Corkup	Law
Team 29	DIGIMAPS	Law
Team 30	4U	Law
Team 31	With and Without	Law
Team 32	Law Bag	Law
Team 33	CinTravel	Psychology and Law
Team 34	Institute of the Mind	Psychology
Team 35	CinzClip	Psychology
Team 36	We Go	Psychology
Team 37	Break	Psychology

Table 6 presents the quantitative classifications obtained by the students in the Entrepreneurship course. The results are presented according to the different activities developed by the students during the Entrepreneurship course, held in 2016/2017.

Table 6: Student classification results with the **EHIS Method** – Scale from 0 to 20.

Assessment elements	Classification
Participation	14,0
Seminars	15,4
Pitch 1	14,9
Pitch 2	14,7
Pitch 3	14,2
Application to Net UPT	14,6
Final Average	14,7

4. Concluding remarks

The EHIS method is still very recent, having been adopted for the first time in the academic year of 2014-2015. This entrepreneurship education method is based on the principle of "learning by doing", with a particular focus on project-based learning and also on team based-learning (Costa-Lobo, 2011). Throughout 17 sessions, students have several opportunities to develop not only technical knowledge on the subject, but also learn from doing and creating their own project. As presented in Table 4 the method develops competences that are recognized as central in the entrepreneurship mindset, such as, teamwork, communication, critical thinking, creative thinking, problem-solving, argumentation, networking, resilience and leadership. This analytical work, does not allow time to assess the prevalence of the presented analysis, which leads us to believe that this is the limitation of the assessment methodology implemented in this EHIS Method© edition and suggests to conduct a longitudinal study, at the next edition of the project, that may enhance the examination of the temporal relationships between variables and the degree to which the predictors may be relevant to the change of criterion variables, as explained by social cognitive theory of career (Costa-Lobo, 2011; Costa-Lobo & Ferreira, 2012). The results indicate that this method is a useful tool to develop entrepreneurship skills of utmost importance in the knowledge-based economy and preparing students for their working life.

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