

Title: A ten-year literature review of Entrepreneurship Education in Higher Education: Entrepreneurship and Sport Sciences, a gap to fill?

Authors:

Ana Naia, FMH, Technical University of Lisbon, Lisbon, Portugal

Carlos Januário, FMH, Technical University of Lisbon, Lisbon, Portugal

Virgínia Trigo, ISCTE – Lisbon University Institute

Rui Baptista, IST, Technical University of Lisbon, Lisbon, Portugal

Contact information: ananaia@gmail.com, anaia@fmh.utl.pt; +351964157708

Abstract

The present research aims to analyze entrepreneurship education in higher education developments in the last 10 years in what concerns to educational product and process and to justify the importance of promoting entrepreneurship education in Sport Sciences undergraduate courses.

Several trends and improvements emerge in this 10-year literature review reflecting the increasing expansion of the field. However some gaps still exists, such as main focus on business and engineering fields and lacking uniformity in the programs and methods proposed. Due to complementarities between Sports and Entrepreneurship a specific context was analyzed and it was shown that Entrepreneurship can occur in all areas and Sport Sciences students can benefit of this interaction.

Our study contributes to theoretical development providing an overview of the current state of the field, highlighting main trends and gaps, opening avenues of research, such as the case of Sport Sciences and a new concept is proposed, of job-innovators.

Introduction

Entrepreneurship education has evolved and it's clear the enormous proliferation of courses in business schools in the early 1970s, since the first entrepreneurship course was proposed in 1947 (Vesper & Gartner, 1997; Klofsten, 2000; Solomon et al, 2002; Katz, 2003; Kuratko, 2005).

Entrepreneurship education can be part of the solution to face new demands and new challenges and we believe that entrepreneurial competences should be part of the curriculum of higher education in all areas.

In Portugal there is no tradition in teaching Entrepreneurship, and although entrepreneurship courses start to appear, is not yet a common practice in Sport Sciences. Our research problem was the absence of a curriculum that promotes entrepreneurship education in Sport Sciences undergraduate courses, in a specific context, and according to actual trends, we consider that a major flaw.

Through a 10-year literature review in the field of entrepreneurship education in higher education, based on published articles in leading journals in the areas of Business, Management and Entrepreneurship in the context of Higher Education, and content analysis, we are going to identify main gaps, and then justify the importance of promoting entrepreneurship education in Sport Sciences undergraduate courses.

Gorman, Hanlon and King (1997) have conducted a ten-year literature review of entrepreneurship education (1985-1994) and although Kuratko (2005) mentions some articles

of the “New Millennium”, we didn’t find any article which focuses in the last ten-year literature review.

This paper is organized as follows: First we present the 10 year literature review in entrepreneurship education in higher education. Second we justify the importance of promote entrepreneurship education in Sport Sciences, in a particular context. Third we conclude and discuss the implications and limitations associated with our findings, providing suggestions for future research.

Entrepreneurship Education: a 10-year literature review

Methodology

Data and Procedures

Papers selected for our study were restricted to those published in leading journals specialized in Business, Management and Entrepreneurship in the context of Higher Education. Most of these journals were chosen because they are representative of entrepreneurship education studies in Higher Education. Our study is limited to the last ten years and our search is limited to the internet available issues.

We conducted two searches for articles about entrepreneurship education in Higher Education from the last 10 years:

- 1) in leading journals: Journal of Business Venturing (2000-2011), Academy of Management Learning & Education 2002-2010), Entrepreneurship Theory and Practice (2002-2011), Entrepreneurship & Regional Development (2000-2011), Journal of Small Business Management (2001-2011), Small Business Economics (2000-2011), International Entrepreneurship Management Journal (2005-2011), International Small Business Journal (2000-2011).
- 1) in *b-on* database, thereby adding new journals to the initial research - but limited to the articles found - (Technology Analysis & Strategic Management, International Journal of Business and Globalization, International Journal of Entrepreneurship and Small Business, Industry & Higher Education, Journal of Business Economics and Management, Journal of European Industrial Training, Journal of Enterprising Culture, Comportamento Organizacional e Gestão, Journal of Small Business, Enterprise Development and European Journal of Engineering Education and Journal of European Industrial Training).

We look for the following keywords in the title and articles abstract: “entrepreneurship education”, “educating entrepreneurship”, “teaching entrepreneurship”, “entrepreneurial university”, “entrepreneurship faculty” and “academic entrepreneurship”.

The searches retrieved 41 journal articles with the distribution shown in Table 1.

Table 1. Distribution of the journal articles

Journal	N° articles
Journal of Business Venturing	4
Academy of Management Learning & Education	7
Entrepreneurship Theory and Practice	1
Entrepreneurship & Regional Development	2
Journal of Small Business Management	1
Small Business Economics	1
International Entrepreneurship Management Journal	9
International Small Business Journal	1
Technology Analysis & Strategic Management	2
International Journal of Business and Globalization	1
International Journal of Entrepreneurship and Small Business	1
Industry & Higher Education	3
Journal of Business Economics and Management	1
Journal of Enterprising Culture	2
Comportamento Organizacional e Gestão	1
Journal of Small Business and Enterprise Development	1
European Journal of Engineering Education	2
Journal of European Industrial Training	1

Data analysis

Articles were first categorized according to focus (empirical or descriptive/theoretical), such as Gorman, Hanlon and King (1997) in their ten-year literature review. They were then further organized in three different categories according to their content: Educational Process (models and methods, theories and competencies, materials); Educational Practice (presentation, analysis and evaluation of entrepreneurship programs; influence of entrepreneurship education (and other factors) in venture creation or start-up intentions); Framework and conceptual evolution (current state of the field in different countries; categorization and boundaries of entrepreneurship education and related concepts). Gorman, Hanlon and King (1997) also grouped their articles by content, however just one of the groups is similar (educational process), probably due to the different purposes and organization of the articles.

The next section will outline the results of this review. First we analyze briefly the research methods, the data/sample, and the definitions of entrepreneurship education used in all articles reviewed. Then we present the articles main findings organized in the three categories: Educational Process, Educational Practice and Framework and Conceptual Evolution.

Research methods

From the articles analyzed, sixteen are empirical and eighteen are descriptive/conceptual. As regards the research methodology, six studies used qualitative methodology, such as content analysis (Katz, 2003; Bechard, 2005; Redford, 2006; Pittaway & Cope 2007; Yusof & Jain, 2010) and Systematic Literature Review (SLR) (Pittaway & Cope 2007).

Eight studies used quantitative methodology, such as statistical techniques (Klofsten & Jones-Evans, 2000; Lena & Wong, 2003; DeTienne & Chandler, 2004; Lee, Chang & Lim, 2005; Solomon, 2007; Edelman, Manolova & Brush, 2008; Rodrigues, Raposo, Ferreira & Paço, 2010; Teixeira, 2010; Kirby & Ibrahim, 2011; Liñán, Rodríguez-Cohard & Rueda-Cantucho, 2011; Dutta, Li & Merenda, 2011; Sánchez, 2011; Giacomini, Janssen, Pruett, Shinnar, Llopis & Toney, 2011).

One study (Heinonen, Poikkijoki & Vento-Vierikko, 2007) employed a mixed-methods approach. The remaining pieces did not specify the methods used.

In what concerns to the research methods most frequently used, there is a balance between quantitative and qualitative methodologies. In the articles reviewed qualitative methodologies through content analysis have been used to analyze a variety of documents (papers, courses, interviews...) and most quantitative methodologies through different statistical techniques have been used to analyze surveys.

This trend is consistent with the suggestions of Gartner, Bird and Star (1992) that emphasize the importance to open the array of methodologies used to study entrepreneurship, bucking the trend of using quantitative methods rather than the qualitative to study this phenomenon. There are also some improvements comparing to the last ten-year literature review of entrepreneurship education (Gorman, Hanlon, & King, 1997) in what concerns to the use of pre- and post-testing, in the use of theory to derive study hypotheses and in the description of the research sample.

Data/Sample

Studies that follow a qualitative approach, usually analyze different documents and studies that follow a quantitative approach analyze surveys. In this topic we are going to focus on the targeted groups for those surveys.

Several countries appear, where USA is no longer the main focus that now extends to Europe and Asia: USA (Lee, Chang & Lim; 2005; DeTienne & Chandler, 2004; Dutta, Li & Merenda, 2011; Giacomini, Janssen, Pruett, Shinnar, Llopis & Toney, 2011); Singapore (Lena & Wong (2003); Korea (Lee, Chang & Lim; 2005); China, India and Belgium (Giacomini, Janssen, Pruett, Shinnar, Llopis & Toney, 2011); Greece (Papayannakis, Kastelli, Damigos & Mavrotas, 2008); Finland (Heinonen, Poikkijoki & Vento-Vierikko, 2007); Switzerland and Ireland (Klofsten & Jones-Evans, 2000); Netherlands (Bonnet, Quist, Hoogwater, Spaans & Wehrmann, 2006); Egypt (Kirby & Ibrahim, 2011); Spain (Liñán, Rodríguez-Cohard & Rueda-Cantucho, 2011; Sánchez, 2011; Giacomini, Janssen, Pruett, Shinnar, Llopis & Toney, 2011); and Portugal (Rodrigues, Raposo, Ferreira & Paço, 2010; Teixeira, 2010).

Lee and Rhoads (2004) and Solomon (2007) analyze National Surveys of colleges and universities in USA and Klandt (2004) analyze a survey of 49 entrepreneurship professorships of German-language countries while Bager (2011) analyzed entrepreneurship camps in Denmark.

As regards the distribution of the samples according to area of knowledge most studies still focus in economics/business (Lena & Wong, 2003; DeTienne & Chandler, 2004; Lee, Chang

& Lim, 2005; Rodrigues, Raposo, Ferreira & Paço, 2010; Kirby & Ibrahim, 2011; Liñán, Rodríguez-Cohard & Rueda-Cantuche, 2011; Dutta, Li & Merenda, 2011) and in engineering (Klofsten & Jones-Evans, 2000; Lena & Wong, 2003; Bonnet, Quist, Hoogwater, Spaans & Wehrmann, 2006; Papayannakis, Kastelli, Damigos & Mavrotas, 2008; Rodrigues, Raposo, Ferreira & Paço, 2010). However there is a growing trend to include other areas, and there are studies that focuses in all scientific disciplines and subjects (Teixeira, 2010; Sánchez, 2011; Giacomini, Janssen, Pruett, Shinnar, Llopis & Toney, 2011).

Definitions of entrepreneurship education

In most articles analyzed, there is a lack of an agreed-upon definition of what entrepreneurship education is. Across the 41 pieces of literature we reviewed, only three provided specific definitions for the term entrepreneurship education (Poikkijoki and Vento-Vierikko, 2007; Solomon, 2007), or reflections about the concept (Fayolle and Gailly, 2008).

According to Poikkijoki and Vento-Vierikko (2007) it *refers to activities aimed at developing enterprising or entrepreneurial people and at increasing their understanding and knowledge about entrepreneurship and enterprise* (p.22) and Solomon (2007) presents a definition of Shepherd and Douglas (1997): *The essence of entrepreneurship is the ability to envision and chart a course for a new business venture by combining information from the functional disciplines and from external environment in the context of the extraordinary uncertainty and ambiguity which faces a new business venture. It manifests itself in creative strategies, innovative tactics, uncanny perception of trends and market mood changes, courageous leadership when the way forward is not obvious and so on. What we teach in our entrepreneurship classes should serve to instill and enhance these abilities.*

An explicit technical and consensual definition of the concept was not found, which led to a variety of concepts to designate this phenomenon: “entrepreneurship education”, “educating entrepreneurship”, “teaching entrepreneurship”, “entrepreneurial university”, “entrepreneurship faculty” and “academic entrepreneurship”. Each author defines the concept used in the article and provides definitions that are situated in specific contexts, in the light of other definitions, usually from entrepreneurship.

Fayolle and Gailly (2008) aware of this gap, analyze several definitions of entrepreneurship education, referring that entrepreneurship definitions have been applied to entrepreneurship education, according to different settings and that this is not a problem. They even suggest that entrepreneurship programs should focus on a clear concept of entrepreneurship, what would help to clarify the entrepreneurship education definition. They argue that the main problem is the lack of a precise definition of entrepreneurship as teaching field, more than the number of existing definitions, where philosophical conceptions about teaching, the role of teacher and the role of students should be clarified in each course.

Framework and conceptual evolution

Table 2. Journal articles about framework and conceptual evolution

Authors	Year	Journal	Purpose	Focus
Finkle & Deeds	2001	Journal of Business Venturing	To examine if the field of entrepreneurship is moving toward or has been institutionalized as part of the curriculum and research within schools of business and management during the years 1989-1998.	Empirical
Katz	2003	Journal of Business Venturing	To analyze the chronology and intellectual trajectory of American entrepreneurship education 1876-1999.	
Klandt	2004	Academy of Management Learning & Education	To analyze the status of the implementation of professorships in the field of entrepreneurship at universities in German-language countries.	
Bechard	2005	Academy of Management Learning & Education	To take stock of the education preoccupations that animate research on entrepreneurship focusing in the context of higher education.	
Kuratko	2005	Entrepreneurship Theory and Practice	To understand trends and challenges in entrepreneurship education for the 21st century.	Descriptive
Redford	2006	Comportamento Organizacional e Gestão	To make a national survey about entrepreneurship education in Portuguese universities to understand the development of this field in 2004/2005.	Empirical
Pittaway & Cope	2007	International Small Business Journal	To explore different themes within entrepreneurship education using the method of systematic literature review (SLR) and to map out the field of entrepreneurship education thematically.	
Solomon	2007	Journal of Small Business and Enterprise Development	To provide an overview of the current state of entrepreneurship education in the USA for the years 2004-2005.	
Yusof & Jain	2010	International Entrepreneurship Management Journal	To delineate the boundaries of university-level entrepreneurship.	

As regards to entrepreneurship education structure, Katz (2003) developed the most comprehensive chronology of entrepreneurship education where it's clear the enormous proliferation of entrepreneurship education courses in business schools in the early 1970s, since the first entrepreneurship course was proposed by Myles Mace at Harvard University in 1947. He concluded that in the USA, the field has reached maturity in business schools; outside business schools demand is growing: entrepreneurship offerings continue to grow in other areas and if new approaches are developed there, business schools are not likely to know, much less to benefit.

In a similar vein, Kuratko (2005) refers that there are more than 2,200 courses at over 1600 schools, 277 endowed positions, 44 refereed academic journals, the number of special issues dedicated to entrepreneurship have increased and more than 200 centers. Although the demand and the supply of entrepreneurship faculty have increased during last nine years, reflecting the progress in the field, one could think that the field is well established in what concerns its institutionalization, however there has been no mandate from the American

Assembly of Collegiate Schools of Business for the incorporation of entrepreneurship into the curriculum of all accredited schools (Finkle & Deeds, 2001).

Kuratko (2005) also emphasizes the importance of entrepreneurship educators to prepare the future attempting to respond optimally to the challenges of 21st century, expanding their pedagogies to include new and innovative approaches.

In this line of thought and regarding new millennium, where technological progress and its application to teaching is one of the main trends, Solomon (2007) found that the use of technology has increased and the Internet is playing a major role in providing entrepreneurship education and he emphasizes the need to focus in the quality of the content presented, rather than quantity and style.

In what concerns to the German-speaking Europe, Klandt (2004) conclude that entrepreneurship education is growing, where entrepreneurship business formation is institutionalized and more and more universities offer programs on that topic.

As regards Portugal, Redford (2006) found two trends in entrepreneurship education: the teaching of entrepreneurship subjects at different institutions and the development of entrepreneurship centers. During academic year of 2004/2005 27 courses were taught in Portugal, reflecting the progress in this area, in a country where entrepreneurship is not culturally rooted.

Regarding the systematization of theoretical and conceptual knowledge Bechard (2005) highlights four preoccupations: 1) with the social and economic roles of entrepreneurship education; 2) with the systematization of entrepreneurship education; 3) with the content matter to be taught and how this content should be delivered; 4) with considering the needs of individual students.

Pittaway and Cope (2007) through a literature review emphasize some issues: entrepreneurship education has had an impact on student propensity and intentionality; lack of consensus on what entrepreneurship or enterprise education actually is; the work that has been carried out usually is conducted in isolation from other important work and areas.

Yusof and Jain (2010) argue that an entrepreneurial university is a university that practices academic entrepreneurship and academic entrepreneurship facilitates and encourages university technology transfer between the university and the industry.

Educational practice

Table 3. Journal articles about educational practice

Authors	Year	Journal	Purpose	Focus
Klofsten & Jones-Evans	2000	Small Business Economics	To examine the activities of academics involved with industry within two European countries: Sweden and Ireland.	Empirical
Lena & Wong	2003	Journal of Enterprising Culture	To investigate the relationship between new venture founding and attitude towards entrepreneurial education.	
Lee & Lim	2005	International Entrepreneurship Management Journal	To identify the differences in the impact of entrepreneurship education between U.S. and Korea.	
Gruner & Neuberger	2006	Journal of Business Economics and Management	To give an insight into the problems authors have encountered since they began developing a curriculum for entrepreneur education at University of Stuttgart.	Descriptive
Bonnet , Quist, Hoogwater, Spaans & Wehrmann	2006	European Journal of Engineering Education	To show that is possible to combine entrepreneurship, sustainability and project education successfully in a subject for undergraduate engineering students.	
Heinonen, Poikkijoki & Vento-Vierikko	2007	Industry & Higher Education	To gain a deeper understanding of the entrepreneurship-directed educational approach in a program targeted to natural science students.	Empirical
Papayannakis, Kastelli, Damigos & Mavrotas	2008	European Journal of Engineering Education	To present the experience of the National Technical University in Greece introducing entrepreneurship education in engineering curricula.	Descriptive
Barbosa , Kickul & Smith	2008	Journal of Enterprising Culture	To give an example of an entrepreneurship education program that incorporates the role of entrepreneurial cognition and risk-taking as students critically examine their intentions and then transform them in actions.	
Rodrigues, Raposo, Ferreira & Paço	2010	International Journal of Entrepreneurship and Small Business	To identify the factors that contribute the most to the intention to start up a business; to identify the profile of student who is a potential entrepreneur.	Empirical
Teixeira	2010	Industry & Higher Education	To examine the attitudes of higher education students in Portugal with regard to new venture creation; to evaluate which factors influence their attitudes.	
Kirby & Ibrahim	2011	International Entrepreneurship Management Journal	To compare British and Egyptian Business studies students in terms of their entrepreneurial tendencies and, in an attempt to explain their performance, their brain dominance.	
Liñán, Rodríguez-Cohard & Rueda-Cantuche	2011	International Entrepreneurship Management Journal	To provide empirically-based suggestions for the design of improved entrepreneurship education initiatives.	
Dutta, Li & Merenda	2011	International Entrepreneurship Management Journal	To enhance the understanding of how prospective entrepreneurs benefit from specialized entrepreneurship education combined with a diversified educational experience.	
Sánchez	2011	International Entrepreneurship Management Journal	To test the effect of entrepreneurship education programs on the entrepreneurial competencies and intention of students to start a business.	
Giacomin, Janssen, Pruett, Shinnar, Llopis & Toney	2011	International Entrepreneurship Management Journal	To examine if there are differences among American, Asian and European students in terms of entrepreneurial intentions, dispositions, motivations and perceived barriers for business start-up.	
Bager	2011	International Entrepreneurship Management Journal	To explore and conceptualize the rapidly expanding camp phenomenon in the entrepreneurship teaching field.	

Gruner and Neuberger (2006) based on their experience, share some suggestions in order to overcome eventual problems while developing a curriculum for entrepreneurship education: provide entrepreneur education for everyone; entrepreneur education should not be results-oriented; a program of training should offer ways of connecting an individual to a particular organization; the contents of a training program should be accessible after years of dependent employment.

Heinonen, Poikkijoki and Vento-Vierikko (2007) after applying an entrepreneurship program concluded that the aim of support and motivate students to increase their potential in an entrepreneurial context, was achieved, promoting entrepreneurial spirit and knowledge about entrepreneurship.

Papayannakis, Kastelli, Damigos and Mavrotas (2008) applied a program that provides educational material, experiential learning reinforcing creativity, where students practice their knowledge and support students to engage in venture creation projects.

Barbosa, Kickul and Smith (2008) showed how to develop an educational program in entrepreneurship to help students increase their entrepreneurial cognition and risk taking, developing both the intuitive and the analytic sides of student's cognition, combining "traditional" classes and experiential learning and involving different actors.

In what concerns to the specialization of entrepreneurship education and its influence on wealth creation from future entrepreneurial activities, Li and Merenda (2011) argue that it's not enough and instead, it is breadth or diversity of educational experiences that positively influences future wealth creation.

Lee, Chang and Lim (2005) analyzed the impact of entrepreneurship Education in USA and Korea and concluded that it differs because cultural contexts in regards to entrepreneurship are also different. Impact of entrepreneurship education in Korea is much greater than in USA probably due to the fact that in USA there is an entrepreneurship-oriented culture and in Korean there isn't.

Klofsten and Jones-Evans (2000) after comparing the activities of Swedish and Irish academics found that there is a considerable entrepreneurial experience among academics in both countries and this is translated into a high degree of involvement in "soft" activities such as consultancy and contract research, but not into organizational creation via technology spin-offs.

Kirby and Ibrahim (2011) after implementing a program concluded that entrepreneurial propensity of the Egyptian students is higher than that of their counterparts in the UK and when exposed to a more entrepreneurial style of teaching and learning, the students' General Enterprising Tendency Test scores increased, suggesting that if changes in teaching were made, it should be possible to change the way students think and behave.

As regards innovative approaches to the development of programs and links with other areas, Bonnet, Quist, Hoogwater, Spaans and Wehrmann (2006) show that it is possible to combine entrepreneurship, sustainability and project education successfully in a subject for undergraduate engineering students.

Beger (2011) also brings us an innovative breeze emphasizing the importance of camps in entrepreneurship education that can be an efficient way for team building, creativity training and innovation boosting purposes, as a supplement to teaching.

Some studies highlight the positive relationship between entrepreneurship education and business start-up intentions (Lena & Wong, 2003; Rodrigues, Raposo, Ferreira & Paço, 2010; Teixeira, 2010; Sánchez, 2011), however and besides that, personal characteristics also have an important role in shaping the motivation to start up a business and perceived hurdles have a negative impact on the intention to start one up (Rodrigues, Raposo, Ferreira & Paço, 2010) and individual factors such as entrepreneurial and work experience and personality traits (risk-taking propensity and creativity) showed to be important to influence students' attitudes toward entrepreneurship (Teixeira, 2010).

Liñán, Rodríguez-Cohard and Rueda-Cantuche (2011) go further arguing that personal attitude and perceived behavioral control are the most relevant factors explaining entrepreneurial intentions and in what concerns to the cultural influence, Giacomini, Janssen, Pruett, Shinnar, Llopis and Toney (2011) found that entrepreneurial disposition and intentions differ by country.

Educational process

Table 4. Journal articles about educational process

Authors	Year	Journal	Purpose	Focus
Laukkanen	2000	Entrepreneurship & Regional Development	To explore alternative strategies in university-based entrepreneurial education, describing the dominant pattern of education.	Descriptive
Fiet	2001	Journal of Business Venturing	To comment on the progress to date in developing entrepreneurship theory.	
Fiet	2001	Journal of Business Venturing	To discuss a strategy for teaching entrepreneurship theory, exploring the best way to link theory with classroom teaching.	
Honig	2004	Academy of Management Learning & Education	To compare three pedagogical models, including two alternative experiential methods: simulations and contingency.	Empirical
DeTienne & Chandler	2004	Academy of Management Learning & Education	To propose that opportunity identification is a competency that can be developed at the entrepreneurship classroom.	
Aronsson	2004	Academy of Management Learning & Education	To understand David Birch vision's of entrepreneurship education.	Descriptive
Shepherd	2004	Academy of Management Learning & Education	To suggest changes to pedagogy to help students manage the emotions of learning from failure (and to avoid failure).	
Lobler	2006	Technology Analysis & Strategic Management	To present a constructivist theory that supports and explains some of the requested changes in entrepreneurship education.	
Binks, Starkey & Mahon	2006	Technology Analysis & Strategic Management	To examine entrepreneurship education in the light of debates about the future of business school, the nature of the MBA, and the links that needs to be created between teaching and research.	
Boyle	2007	Industry & Higher Education	Explain a new model of entrepreneurship education at university level.	
Edelman, Manolova & Brush	2008	Academy of Management Learning & Education	To compare start-up activities of nascent entrepreneurs in the Panel Study of Entrepreneurial Dynamics dataset to data collected from entrepreneurship textbooks.	Empirical
Fayolle & Gailly	2008	Journal of European Industrial Training	To offer a conceptual framework in entrepreneurship education largely inspired by education sciences and discuss its two main levels, the ontological and educational levels.	Descriptive
Kyro	2008	International Journal of Business and Globalization	To present a general framework that combines learning and teaching for fostering individual meta-competencies in planning, conducting and evaluating teaching interventions.	
Hjorth	2011	Entrepreneurship & Regional Development	To develop an affect-based theory, summarized in a model of provocation-based entrepreneurial entrepreneurship education (the E ³ model).	
Neck & Greene	2011	Journal of Small Business Management	To present a framework for teaching in a new world; advance the concept of teaching entrepreneurship as a method.	
Haase & Lautenschlager	2011	International Entrepreneurship Management Journal	To provide an introduction to the problematic of "teachability" of entrepreneurship.	

Laukkanen (2000) suggests a business generating model that aims to foster the conditions for new ventures and for strategic expansion of SMEs: the emergence and fusion of viable business concepts, entrepreneurial actors, resources and an unsparing environment.

After recognizing problems in existing MBA programs offered, Boyle (2007) proposes a model that includes entrepreneurial retreats for the development of entrepreneurial thinking and also includes new curricula and individualized entrepreneurial prescriptions, apprenticeships and opportunity centers, focusing in the development of the individual, more than the dissemination of knowledge.

Hjorth (2011) proposes an affect-based theory of E³ gathers provocation, deterritorialisation (uprooting) and decoding/imagination, which calls for both critique and creativity, and echoes with paralogy as driver in learning process. This model supports learning as a social creation process where the inclination to engage with the deterritorialising/imagination/decoding is maximized socially and socially maintained.

Honig (2004) argues that the method of Contingency Model of Business Planning Education, using Piaget's concept of equilibration, is the most adequate to prepare students to entrepreneurial activities, where the main outcomes are: self-confidence, risk tolerance, leadership and managerial experience, organizational development tools and evaluation tools.

Fiet (2001b) appeals for more theory in entrepreneurship courses and suggests several opportunities to build cumulative theory and a contingency approach for teaching entrepreneurship is presented, emphasizing more deductive approaches than inductive ones. He also shows how to implement a theory-based activity approach, obstacles to its success and advantages of its use arguing that the greatest advantage is that students will be learning theory motivated (Fiet, 2001a).

Lobler (2004) focus on the constructivist approach and argues that in the light of this approach the knowledge is seen as an ongoing constructive process; the goal of education is autonomy; the learner is seen as an active producer and leads the process, while the teacher is the assistant of the learner; and activities focuses in doing, thinking and talking.

Offering an innovative paradigm and based on the fact that is more important to learn a method than a specific content, Neck and Greene (2011) present a method based on a portfolio of techniques to practice entrepreneurship, that is teachable, learnable, but not predictable.

Fayolle and Gailly (2008) aware of the need to reconsider entrepreneurship education in its diversity, trying to overcome some gaps, and sharing Bechard's (2005) major types of preoccupations, propose a teaching model where five questions should be addressed: Why (goals)? For Whom (audience)? For which results (evaluation criteria)? What (content and theories that should be defined according three dimensions: professional, spiritual and

theoretical)? How (methods)? The “What” dimension has three sub-dimensions: professional (know-what, know-how and know-who); spiritual (know-why and know-when) and theoretical (theories and scientific knowledge in the field). They also propose three categories of learning processes in entrepreneurship education: learning to become an enterprising individual, learning to become an entrepreneur and learning to become an academic.

Several competencies are also emphasized to increase entrepreneurial learning and Kyro (2008) highlights the importance of cognition, affection and conation. She argues that we should consider metacognition that is the concept used to describe a learner's competencies to reflect his or her learning and consequently change or improve it.

Haase and Lautenschlager (2011) proposes that three main types of competencies should be developed in entrepreneurship education: hard facts (“know-what”), soft skills (“know-how”) and conviction (“know-why”) and that future entrepreneurship education should desist from merely teaching hard facts and knowledge on business creation and rather focus on experiencing entrepreneurship, developing the entrepreneurial “know-how”. This dimension was already stressed by Fayolle and Gailly (2008) in the learning process to become an entrepreneur.

DeTienne and Chandler (2004) argue that opportunity identification is a competency that can be developed at the entrepreneurship classroom and SEEC (securing, expanding, exposing, and challenging) training can influence the student's abilities to generate more innovative ideas. Shepherd (2004) emphasizes the importance to help students manage the emotions of learning from failure and proposes different ways and methods to achieve that purpose.

Binks, Starkey & Mahon (2006) argue that entrepreneurship education offers an innovative new paradigm for the business school education enabling fundamental changes to its role in society. According to these authors, universities must become more open to what is happening at industry and this constitutes a good opportunity not only for the universities, but also for the business schools and for entrepreneurship education itself.

In what concerns textbooks used to teach entrepreneurship in the classrooms, Edelman, Manolova and Brush (2008) conclude that there is a gap between practice and what is taught to entrepreneurship students in a classroom and entrepreneurship texts do not emphasize enough the activities that enhance the probability of starting a new venture.

To complete this chapter we present David Birch’s viewpoint about entrepreneurship education: for an entrepreneur succeed he need to create a needed product or service, sell it and work with people, making it imperative a curriculum change; research has a very important role: to educate the world on how important entrepreneurship is; it is possible to learn entrepreneurship by being an apprentice, but he also considers that is not possible to learn it in the classroom and being taught by someone who never experienced the entrepreneurship path (Aronsson, 2004).

Entrepreneurship and Sports Science: a gap to fill? The case of Faculty of Human Kinetics – Portugal

Our review shows that entrepreneurship is already seen as a social phenomena related to many different disciplines and perspectives and is studied from different perspectives, as Gartner, Bird and Starr (1992) proposed. Although there is a growing trend to include other areas, most studies still focus in economics/business and engineering.

One of the purposes of this paper was to justify the importance of promoting entrepreneurship education in Sport Sciences undergraduate courses, focusing in a specific context in Portugal, and we decided to provide an overview of what's been made in the last decade, identifying some trends and gaps. This paper tries to address one of the gaps, linking Sport Sciences curriculum in higher education with Entrepreneurship Education, where no studies were found, thereby opening avenues of research.

Sports and entrepreneurship have much in common and if we analyze each one of these concepts, both can influence and maximize the effects of each other. Sport can be considered an entrepreneurial process that is also characterized by innovation, change, proactiveness and risk taking activities, intrinsic to the very definition of entrepreneurship (Ratten, 2011).

Entrepreneurship and Sports complementarities have been discussed in previous research and Ratten (2011) analyzed the relationship between sports management and entrepreneurship developing a theory of sport-based entrepreneurship. Although Ratten (2011) has analyzed this relationship, Sports Sciences undergraduate curriculum include other areas such as Physical education, Exercise and Health and Sports Coaching that can also be related with entrepreneurship.

The Faculty of Human Kinetics (FMH) is the oldest sports and physical education faculty in Portugal. It became part of the Technical University of Lisbon in 1975. (Technical University of Lisbon, 2011)
In the epistemological framework of Sport Sciences the Faculty of Human Kinetics offer several degrees: Sports Management, Exercise and Health, Sports Coaching (1st cycle) and Physical Education (1st + 2nd cycle).

In Portugal there is no tradition in teaching Entrepreneurship, and although entrepreneurship courses start to appear, is not yet a common practice in Sport Sciences undergraduate curriculum, revealing a lack of awareness from both academics and students about the importance to promote Entrepreneurship Education.

If we analyze student's competences and future employments (Table 5) we conclude that Entrepreneurship can occur in all areas and Sports Science students can benefit of this interaction, creating their own venture, as entrepreneurs, or innovating inside organizations,

as intrapreneurs. In what concerns to their competences, all can be maximized through the introduction of Entrepreneurship Education in their curriculum, increasing their innovation, proactiveness and risk taking, becoming better professionals.

Table 5. Competences and employment of Sport Sciences students of FMH

Degrees	Competences and employment	Type of work	E N T R E P R E N E U R S ?
Sports Management	Competences: understand the economics of sport; apply the information systems to sport organizations; plan, manage and track projects directly or indirectly related to the world of sport; contextualize marketing tools to the world of sport; apply the various management paradigms in different organizational contexts in the world of sport.	Self-employment & work for others	I N T R A P R E N E U R S ?
	Employment: Sportive Director, Technical Secretary, Sportive Technician of Autarchy, Sport facilities Director, Operations Manager, Sport events Manager, Sportive Societies Administrator, Product Manager, Commercial Manager, Human resources Manager, Marketing Manager, Adviser and Researcher.		
Exercise and Health	Competences: Assessment, prescription and implementation of exercise programs including the use of different equipment settings and methods; stimulation of teams and initiatives related with the promotion of physical activity.		
	Employment: Fitness Instructor.		
Sports Coaching	Competences: Organizing and managing the training process; analysis of the process of Management and Administration of Sports System; coach education; organization and evaluation of sports events.		
	Employment: Coach and Sport animator.		
Physical Education	Competences: management of teaching and learning; participation in school; promotion of the relationship between school and community; professional development and research.	Work for others (schools)	S ?
	Employment: Physical Education Teacher.		

Entrepreneurial skills are very important in a knowledge-based society and if universities want to survive, they must become entrepreneurial improving their educational offer in order to reduce the gap that sometimes exists, between professional and academic world.

Higher education institutions should reflect about the type of curriculum and competences that are offering and the major concern should be not only to create job-seekers and job-creators (Miclea, 2004; Schulte, 2004), but above all, job-innovators. This concept of job-innovators is transverse both to job-seekers and job-creators concepts and it seems to be appropriate to meet the needs of a knowledge-based society because there is an increasingly need of professionals who innovate inside their workplaces, whether they work for others (job-seekers), also known as intrapreneurs, or for themselves, creating their own venture (job-creators), also known as entrepreneurs.

Conclusion

Our research problem was the absence of a curriculum that promotes entrepreneurship education in Sport Sciences undergraduate courses, in a specific context, and according to actual trends in entrepreneurship education, we consider that a major flaw.

Through a 10-year literature review in the field of entrepreneurship education in higher education, based on published articles and content analysis, identifying some gaps, we've decided to justify the importance of promoting entrepreneurship education in Sport Sciences undergraduate courses.

Several trends emerge in this review that reflect the increasing expansion of the field: the use of both quantitative and qualitative methodologies instead of just quantitative; target groups from different countries where US is no longer the main focus that now extends to Europe and Asia; although most studies still focus in economics/business and engineering, other areas of knowledge are included; an increasing use of internet to teach entrepreneurship; focus on the practice and know-how skills, more than in the transmission of knowledge; appeal to active participation of the learner and multidisciplinary; teaching entrepreneurship as a method and the use of camps.

Several programs with positive results were present and suggestions shared, reflecting different experiences in a variety of contexts; however is still lacking uniformity in the programs offered, what is in line with Gorman, Hanlon, and King (1997).

A variety of methods or models were proposed, based on different approaches, where an appeal for more theory in entrepreneurship courses is made, as well as a review of entrepreneurship textbooks. The development of certain competences is highlighted (cognition, affection, conation, hard facts ("know-what"), soft conviction ("know-why"), opportunity identification, manage the emotions of learning from failure). Gorman, Hanlon, and King (1997) also emphasize the increasing interest on attributes and skills, active participation and practice related with venture development.

Fayolle and Gailly (2008) make an important contribution developing a conceptual framework to improve the design and evaluation of entrepreneurship teaching programs, filling some gaps related with the systematization of the field.

The findings show that there are some improvements comparing to the last ten-year literature review of entrepreneurship education (Gorman, Hanlon, & King, 1997), especially in what concerns to the research methods (use of pre- and post-testing, the use of theory to derive study hypotheses and the description of the research sample). However much remains to be done in order to fulfill some gaps, such as: main focus on business and engineering fields and lacking uniformity in the programs and methods proposed.

Sports and entrepreneurship have much in common and both can influence and maximize the effects of each other. A specific context was analyzed and it was shown that Entrepreneurship can occur in all areas and Sports Science students can benefit of this interaction and their competences can be maximized through the introduction of Entrepreneurship Education in their curriculum. The concept of job-innovators was proposed and seems to be appropriate to meet the needs of a knowledge-based society, where entrepreneurship education is no longer a matter for debate.

In what concerns to implications, we consider that our study contributes to theoretical development providing an overview of the current state of the field highlighting main trends and gaps, opening avenues of research, such as the case of Sport Sciences. It has also practical value in that the findings push forward the need to develop a new curriculum in Sport Sciences.

Several limitations have to be kept in mind when considering the findings and conclusions of this paper. Organizing the search as we did, we know we eliminated a wide variety of studies and articles that address issues related with entrepreneurship education. Our categories of analyses fit our purposes but may have left behind important issues.

Suggestions for future research emerge from limitations and gaps found in the articles reviewed. Our findings appeal to more research in order to standardize programs and methods, as well as to review textbooks, to create programs that focus on practice and competences development and, to study other areas besides business and engineering.

The literature review seeks to advance the theoretical field emphasizing other areas of knowledge that can benefit from the inclusion of the concept of entrepreneurship in their curricula, such as Sport Sciences and, a new concept is proposed, of job-innovators.

References

- Aronsson, M. (2004). "Education Matters - But Does Entrepreneurship Education? An interview with David Birch". *Academy of Management Learning & Education*, 3(3), 289-292.
- Bager, T. (2011). "The camp model for entrepreneurship teaching". *International Entrepreneurship Management Journal*, 7(2), 279-296.
- Barbosa, S. D., Kickul, J., & Smith, B. R. (2008). "The road less intended: integrating entrepreneurial cognition and risk in Entrepreneurship Education". *Journal of Enterprising Culture*, 16(4), 1-29.
- Bechard, J.-P. (2005). "Entrepreneurship Education Research Revisited: The Case of Higher Education". *Academy of Management Learning & Education*, 4(1), 22-43.
- Binks, M., Starkey, K., & Mahon, C. L. (2006). "Entrepreneurship Education and the Business School". *Technology Analysis & Strategic Management*, 18(1), 1-18.
- Bonnet, H., Quist, J., Hoogwater, D., Spaans, J., & Wehrmann, C. (2006). "Teaching sustainable entrepreneurship to engineering students: the case of Delft University of Technology". *European Journal of Engineering Education*, 31(2), 155-167.
- Boyle, T. J. (2007). "A new model for entrepreneurship education: implications for Central and Eastern European Universities". *Industry & Higher Education*, 21(1), 9-19.
- DeTienne, D. R., & Chandler, G. N. (2004). "Opportunity Identification and Its Role in the Entrepreneurial Classroom: A Pedagogical Approach and Empirical Test". *Academy of Management Learning & Education*, 3(3), 242-257.
- Dutta, D. K., Li, J., & Merenda, M. (2011). "Fostering entrepreneurship: impact of specialization and diversity in education". *International Entrepreneurship Management Journal*, 7(2), 163-179.
- Edelman, L. F., Manolova, T. S., & Brush, C. G. (2008). "Entrepreneurship Education: Correspondence Between Practices of Nascent Entrepreneurs and Textbook Prescriptions for Success". *Academy of Management Learning & Education*, 7(1), 56-70.
- Fayolle, A., & Gailly, B. (2008). "From Craft to Science: Teaching Models and Learning Processes in Entrepreneurship Education". *Journal of European Industrial Training*, 32(7), 569 - 593.
- Fiet, J. O. (2001a). "The pedagogical side of teaching entrepreneurship". *Journal of Business Venturing*, 16(2), 101-117.
- Fiet, J. O. (2001b). "The theoretical side of teaching entrepreneurship". *Journal of Business Venturing*, 16(1), 1-24.
- Finkle, T. A., & Deeds, D. (2001). Trends in the market for Entrepreneurship Faculty, 1989-1998. *Journal of Business Venturing*, 16(6), 613-630.
- Gartner, W. B., Bird, B. J., & Starr, J. A. (1992). "Acting As If: Differentiating Entrepreneurial From Organizational Behavior". *Entrepreneurship Theory and Practice*, 16(3), 13-31.
- Giacomin, O., Janssen, F., Pruett, M., Shinnar, R. S., Llopis, F., & Toney, B. (2011). "Entrepreneurial intentions, motivations and barriers: Differences among American, Asian and European students". *International Entrepreneurship Management Journal*, 7(2), 219-238.
- Gorman, G., Hanlon, D., & King, W. (1997). "Some research perspectives on entrepreneurship education, enterprise education and education for small business management: a ten year literature review". *International Small Business Journal*, 15(3), 56-77.

- Gruner, H., & Neuberger, L. (2006). "Entrepreneur's Education: Critical Areas for the Pedagogic-Didactic Agenda and Beyond". *Journal of Business Economics and Management*, VII(4), 163-170.
- Haase, H., & Lautenschlager, A. (2011). "The "Teachability Dilemma" of entrepreneurship". *International Entrepreneurship Management Journal*, 7(2), 145-162.
- Heinonen, J., Poikkijoki, S.-A., & Vento-Vierikko, I. (2007). "Entrepreneurship for bioscience researchers: A case-study of an entrepreneurship programme". *Industry & Higher Education*, 21(1), 21-30.
- Hjorth, D. (2011). "On provocation, education and entrepreneurship". *Entrepreneurship & Regional Development*, 23(1, 2), 49-63.
- Honig, B. (2004). "Entrepreneurship Education: Toward a Model of Contingency-Based Business Planning". *Academy of Management Learning & Education*, 3(3), 258-273.
- Katz, J. A. (2003). "The chronology and intellectual trajectory of American entrepreneurship education 1876-1999". *Journal of Business Venturing*, 18(2), 283-300.
- Kirby, D. A., & Ibrahim, N. (2011). "Entrepreneurship education and the creation of an enterprise culture: provisional results from an experiment in Egypt". *International Entrepreneurship Management Journal*, 7(2), 181-193.
- Klandt, H. (2004). "Entrepreneurship Education and Research in German-Speaking Europe". *Academy of Management Learning & Education*, 3(3), 293-301.
- Klofsten, M., Heydebreck, P., & Jones-Evans, D. (2010). "Transferring Good Practice Beyond Organizational Borders: Lessons from Transferring an Entrepreneurship Programme". *Regional Studies*, 44(6), 791-799.
- Klofsten, M., & Jones-Evans, D. (2000). "Comparing Academic Entrepreneurship in Europe - The Case of Sweden and Ireland". *Small Business Economics*, 14(4), 299-309.
- Kuratko, D. F. (2005). "The Emergence of Entrepreneurship Education: Developments, Trends and Challenges". *Entrepreneurship Theory and Practice*, 29(5), 577-598.
- Kyro, P. (2008). "A theoretical framework for teaching and learning entrepreneurship". *International Journal of Business and Globalisation*, 2(2), 39-55.
- Laukkanen, M. (2000). "Exploring alternative approaches in high-level entrepreneurship education: creating micro-mechanisms for endogenous regional growth". *Entrepreneurship & Regional Development*, 12(1), 25-47.
- Lee, S. M., Chang, D., & Lim, S.-B. (2005). "Impact of Entrepreneurship Education: A Comparative Study of the U.S. and Korea". *International Entrepreneurship Management Journal*, 1, 27-43.
- Lena, L., & Wong, P.-K. (2003). "Attitude towards Entrepreneurship Education and New Venture Creation". *Journal of Enterprising Culture*, 11(4), 339-357.
- Liñán, F., Rodríguez-Cohard, J. C., & Rueda-Cantuche, J. M. (2011). "Factors affecting entrepreneurial intention levels: a role for education". *International Entrepreneurship Management Journal*, 7(2), 195-218.
- Lobler, H. (2006). "Learning Entrepreneurship from a Constructivist Perspective". *Technology Analysis & Strategic Management*, 18(1), 19-38.
- Miclea, M. (2004). "Learning To Do" as a Pillar of Education and Its Links to Entrepreneurial Studies in Higher Education: European Contexts and Approaches". *Higher Education in Europe*, 29(2), 221-231.
- Neck, H. M., & Greene, P. G. (2011). "Entrepreneurship Education: Known Worlds and New Frontiers". *Journal of Small Business Management*, 49(1), 55-70.
- Papayannakis, L., Kastelli, I., Damigos, D., & Mavrotas, G. (2008). "Fostering entrepreneurship education in engineering curricula in Greece. Experience and challenges for a Technical University". *European Journal of Engineering Education*, 33(2), 199-210.

- Pittaway, L., & Cope, J. (2007). "Entrepreneurship Education". *International Small Business Journal*, 25(5), 479-510.
- Ratten, V. (2011). "Sport-based entrepreneurship: towards a new theory of entrepreneurship and sport management". *International Entrepreneurship Management Journal*, 7(1), 57-69.
- Redford, D. T. (2006). "Entrepreneurship education in Portugal: 2004/2005 national survey". *Comportamento Organizacional e Gestão*, 12(1), 19-41.
- Sánchez, J. C. (2011). "University training for entrepreneurial competencies: Its impact on intention of venture creation". *International Entrepreneurship Management Journal*, 7(2), 239-254.
- Schulte, P. (2004). "The Entrepreneurial University: A Strategy for Institutional Development". *Higher Education in Europe*, 29(2).
- Shepherd, D. A. (2004). "Educating Entrepreneurship Students About Emotion and Learning from Failure". *Academy of Management Learning & Education*, 3(3), 274-287.
- Solomon, G. (2007). "An examination of entrepreneurship education in the United States". *Journal of Small Business and Enterprise Development*, 14(2), 168-182.
- Technical University of Lisbon. (2011). Courses Catalogue - Faculty of Human Kinetics. Retrieved 10/06/2011, from <http://www.utl.pt/pagina.php?area=150>
- Teixeira, A. A. C. (2010). "Attitudes of higher education students to new venture creation: The relevance of competencies and contextual factors". *Industry & Higher Education*, 24(5), 1-19.
- Yusof, M., & Jain, K. K. (2010). "Categories of university-level entrepreneurship: a literature survey". *International Entrepreneurship Management Journal*, 6(1), 81-96.