Entrepreneurial Learning in Higher Education: Introduction to the Thematic Issue

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IN THIS INTRODUCTION to the thematic issue we review the theoretical foundations of the field of entrepreneurial learning and shed more light on entrepreneurial learning in higher education. Next, we discuss the importance of entrepreneurialism in universities to accommodate interdisciplinary learning modes. We then outline the article selection process and summarize the key elements of each of the included articles.

ENTREPRENEURIAL LEARNING: THEORETICAL FOUNDATIONS

Entrepreneurial Learning has recently emerged as a new practice involving both entrepreneurship and higher education processes. Cope (2005) observed that 'a better theoretical grasp of entrepreneurial learning is imperative, as it is through learning that entrepreneurs develop and grow.' Building on an educational case study, Rae (2009) defines entrepreneurial learning as learning to recognize and act on opportunities, and interacting socially to initiate, organize and manage ventures. This process has the double connotation both of learning to behave in, as well as learning through, entrepreneurial ways. Learning should be relational, authentic, relevant, useful and productively shared (Rae 2009). However, the concept of entrepreneurial learning has been mainly defined from a perspective of entrepreneurship theory. For instance, Minniti and Bygrave (2001) define entrepreneurship as a process of learning, where entrepreneurial learning is described as generated, at least in part, by the reinforcement of the belief in

certain actions due to their positive outcomes. Similarly, Politis (2005) describes entrepreneurial learning as a process that facilitates the development of necessary knowledge for being effective in starting up and managing new ventures. His study highlights entrepreneurial learning
[4] as an experiential process where enterprising individuals continuously develop their entrepreneurial knowledge throughout their professional lives (Politis 2005). Entrepreneurial learning can also be conceived as a lifelong learning process, where knowledge is continuously shaped and revised as new experience takes place (Sullivan 2000). Based on Kolb's (1984) theory, entrepreneurial learning can be regarded as an experiential process in which entrepreneurs develop knowledge through four distinctive learning abilities: experiencing, reflecting, thinking, and acting (Bailey 1986; Johannisson, Landstrom and Rosenberg 1998). Following the same order of ideas, many other scholars have assumed that entrepreneurial learning is a process by which people acquire, assimilate, and organize newly formed knowledge with pre-existing structures, and how learning affects entrepreneurial action (e.g. Cope 2005; Corbett 2005; 2007; Rae and Carswell 2001; Warren 2004).

From these definitions, we can assume a strong relationship between the entrepreneurial process and learning. Minniti and Baygrave (2001) point out that 'entrepreneurship is a learning process, and a theory of entrepreneurship requires a theory of learning.' However, we still have a limited knowledge and understanding of the interaction between learning and entrepreneurship, and such a process remains one of the most neglected areas of entrepreneurial research, and thus, understanding (Deakins 1999). Entrepreneurial learning is seen as an extremely complex dynamic phenomenon (Warren 2004).

Learning is the process by which people acquire new knowledge, including skills and specific competencies, from experience or by observing others, and assimilate and organize them with prior knowledge in memory to make them retrievable for use in both routine and non-routine action (Anderson 1982; Holcomb et al. 2009). Learning is defined also as an emergent, sense-making process in which people develop the ability to act differently, through knowing, doing, and understanding why (Mumford 1995). By learning, people construct meaning through experience and create new reality in a context of

social interaction (Weick 1995). Accordingly, entrepreneurial learning is the outcome of dynamic social processes of sense-making, which are not only cognitive or behavioral but also affective and holistic (Gibb 2001; Cope 2005). It is a dynamic process of awareness, reflection, association, and application that involves transforming experience and knowledge into functional learning outcomes (Rae 2006), where 'process' refers to the logic of explaining the causal relationship between entrepreneurs' previous experiences and the performance of the subsequent venture (Politis 2005). Entrepreneurial learning is hence complex and interconnected with a somewhat ad hoc approach to formal learning and a heavy reliance on experiential learning (Warren 2004). [5]

Very little effort has been made to distinguish between 'entrepreneurial experience' and 'entrepreneurial knowledge' or what Reuber, Dyke and Fischer (1990) refer to as 'experientially acquired knowledge.' Literature and research suggest that much of the learning that takes place within an entrepreneurial context is experiential in nature (e.g. Collins and Moore 1970; Deakins and Freel 1998; Minniti and Bygrave 2001; Reuber and Fischer 1993; Sarasvathy 2001; Sullivan 2000). Experiential learning can be described as the process whereby knowledge is created through the transformation of experience (Kolb 1984). Such learning can produce new behavioral patterns, judgmental structures, and generative mechanisms for action (Holcomb et al. 2009). This learning cannot and should not be divorced from the specific context, including organizational context, within which it takes place. Such learning occurs in a context of application which corresponds to Mode 2 knowledge production (Gibbons et al. 1994). According to Kolb (1984) we can distinguish between two basic and interrelated dimensions of experiential learning, i) acquisition (grasping) which corresponds to entrepreneurial experience, and ii) transformation that is considered equivalent to entrepreneurial knowledge.

Minniti and Bygrave (2001) ascertain that knowledge acquired through learning-by-doing takes place when agents choose among alternative actions whose payoffs are uncertain, and as result, risky. Kirzner (1979) defines entrepreneurial knowledge as a 'rarefied abstract type of knowledge – the knowledge of where to obtain information (or

other resources) and how to deploy it.' Acquired knowledge generates routines and decisional procedures. Routines are patterns derived from successful solutions to some particular problem (Nelson and Winter 1982). This shows how enterprising individuals continuously develop
[6] their entrepreneurial knowledge throughout their professional lives. According to Harrison and Leitch (2005), the experiential learning is a process that relatively permanently alters the character of behavior, and it is organized by existing operating procedures, practices, and other organizational rules and routines (Holmqvist 2003).

Holcomb et al. (2009) distinguish between experiential learning and vicarious learning, which can be defined as observational learning involving modeling the behaviors and actions of others (Bandura 1977). This suggests that people differ in the manner in which they accumulate knowledge. Learning processes adapt incrementally (Levinthal 1996) as people learn from the consequences of actions taken and from the behavior and choices they observe in others. Eliasson (1996; 1998) found out how experimenter managers have to bundle together a number of interrelated competencies into a competence bloc, through a process of creating (innovation), recognizing (risk capital provision), diffusing (spillovers), and successfully exploiting (receiver competence) new ideas in clusters of firms. For Piaget (1950), intelligence and learning take place in evolutionary stages where equilibration or our attempt to create a balance between ourselves and the environment leads to our intellect development by changing mental structures to reflect unique situations or new experiences (Honig 2004).

Different factors affect the entrepreneurial learning process. For instance prior knowledge and heuristics orient entrepreneurs to information cues and act to produce new knowledge on which entrepreneurs rely to recognize and exploit opportunities (Holcomb et al. 2009). Similarly, the entrepreneur's career experience, in terms of start-up, management, and industry-specific experience, is positively related to the development of entrepreneurial knowledge (Politis 2005) that facilitates decision-making about entrepreneurial opportunities under uncertainty and time pressure (Johannisson, Landstrom and Rosenberg 1998; Sarasvathy 2001). March (1991) argues that both ways of

transforming an experience into knowledge, namely exploration and exploitation, are essential to sustain learning. Nevertheless, maintaining an appropriate balance between exploration and exploitation is a primary concern for survival and prosperity (March 1991), as the exploitation of commercially successful new ideas provides the resources [7]
to support new exploration (Mintzberg and Waters 1982). This suggests that the entrepreneur's predominant mode of transformation moderates the relationship between his or her career experience and entrepreneurial knowledge (Politis 2005). Moreover, it can be argued that failure stimulates entrepreneurs to pursue an explorative search for new possibilities (Sarasvathy 2001), particularly in the case of 'intelligent failures,' which provide a basis for altering future behavior through new information from which to learn (Sitkin 1992). This suggests that entrepreneurial learning tends to be path-dependent (Minniti and Bygrave 2001). Experiential learning creates path-dependencies in which prior experience within a particular domain channels entrepreneurs' attention to those domains, making it more efficient to acquire and assess diagnostic cues, as well as identify opportunities within familiar areas (Holcomb et al. 2009).

The entrepreneur's predominant reasoning also affects the accumulation of his or her knowledge (Politis 2005). Sarasvathy (2001) refers to two kinds of predominant logic or reasoning as: i) causal reasoning, which uses techniques of analysis and estimation to explore and exploit existing and latent markets, and ii) effectual reasoning, on the other hand, which calls for synthesis and imagination to create new markets that do not already exist. Rae (2006) found out that entrepreneurial learning occurs and can be interpreted by reference to three factors: i) personal and social emergence of the entrepreneur, ii) contextual learning which leads to the recognition and enacting of opportunities in specialized situations; and iii) the negotiated enterprise, which includes processes of participation and joint enterprise, changing roles over time, and engagement in networks of external relationships. Building on the first factor, Liang and Dunn (2008) pinpoint the importance of optimism vs. realism, among other entrepreneurial characteristics, to shape entrepreneurs' experience and consequently their knowledge.

ENTREPRENEURIAL LEARNING IN HIGHER EDUCATION

Entrepreneurship competencies are likewise ambiguous, comprising a range of personal characteristics, attitudes, and skills such as problem solving, leadership, communication, self-awareness and assessment skills as well as business and managerial competencies (Frank 2007). Gibb (1987) defines an entrepreneur as an individual demonstrating a marked use of enterprising attributes such as initiative, persuasive power, moderate risk-taking, creativity, independence, problem-solving, need for achievement, imagination, leadership, hard work and internal locus of control. According to MacPherson (2009), entrepreneurs exemplify nine common areas of learning content: acquiring business-specific knowledge; learning business mechanics; learning about context, customers, and the competition; studying people; studying leadership principles; reflecting on company values; and discovering how to create learning organizations.

Some scholars claim that even if some of the entrepreneurial information can be learned through education, much of the necessary knowledge about exploiting opportunities can only be learned by doing (Cope and Watts 2000; Rae 2000; Shane 2003). Having prior management experience provides the entrepreneurs with training in many of the skills such as selling, negotiating, leading, planning, decision making, problem-solving, organizing, and communicating (Lorrain and Dussault 1988). Accordingly, while certain functional skill sets can be 'taught,' experiential learning is essential to entrepreneurial learning (Gibb 1987; 1997; Gorman, Hanlon and King 1997; Deakins and Freel 1998; Warren 2004). Similarly, Politis (2005) claims that attempts to stimulate entrepreneurial activities through formal training and education are not likely to have any strong and direct impact on the development of entrepreneurial knowledge. Moreover, there has been extensive writing on entrepreneurship education (Gibb 1993), from which some authors have concluded that, while such education can provide cultural and personal support, knowledge and skill development about and for entrepreneurship, the 'art' of entrepreneurial practice is learned mainly in the business environment through inductive, practical and social experience rather than in the

education environment (Rae 2006; Gorman, Hanlon and King 1997).

Given both the extent and diffusion of entrepreneurship education, the dearth of researchers systematically evaluating the impact of course content on post-course entrepreneurial activity is quite surprising (Gorman, Hanlon and King 1997). Unfortunately, the literature [9] attempting to systematically connect entrepreneurial formal or traditional education to entrepreneurial activity or performance is virtually non-existent (Autio et al. 1997). One exception is research that examines the impact of education on entrepreneurial intentions, in terms of a student's view of the desirability and feasibility of starting a business (Autio et al. 1997; Krueger 1993; Peterman and Kennedy 2003).

It is our contention in this Thematic Issue that entrepreneurship education can foster entrepreneurial learning, and help individual students develop a set of skills and competencies that can facilitate and support their entrepreneurial activities. People acquire knowledge in three ways: by direct experience, by observing the actions and consequences of others, and by explicit codified sources such as books, papers, etc. (Holcomb et al. 2009). Entrepreneurs create highly efficient ways to acquire the knowledge and information they need to develop their business and realize their compelling vision. These include: learning through experience, learning from others, self-directed learning, reading, conversation, team learning, and critical self-reflection (MacPherson 2009). Whereas we cannot ignore the contribution of education to accommodate these different learning modes, we should also consider the limits of existing educational systems to develop innovative learning strategies that help students acquire entrepreneurial skills and competencies.

Attempts have been made to implement new learning strategies in line with Mode 2 knowledge production which is: carried out in the context of application, trans-disciplinary, heterogeneous, *heterarchical* and transient, socially accountable and reflexive (Gibbons et al. 1994). Maintaining that the contemporary MBA focuses too much on analytical decision making, Mintzberg has developed this critique by advocating pedagogical devices that improve the situational, collaborative, and global problem solving capabilities of contemporary managers (Mintzberg and Gosling 2002). Entrepreneurship course content

varies widely, including the use of case material, simulations (Hindle and Angehrn 1998), trial and error, divergent thinking (Sternberg and Lubart 1999), and various 'hands-on' approaches (Gorman et al. 1997; Vesper and McMullan 1988). Other approaches include, for instance,
[10] Heinonen and Pikkijoki's (2006) four-stage entrepreneurial process model connected with behaviors, skills and attributes, introducing an entrepreneurial-directed approach to education that was based on circles of experiential learning, with new activity producing new experience and new thinking through reflection. This is an example of the action learning approach, which is a structured and collaborative process of enquiry undertaken through questioning, acting, sharing experience and reflecting on problem-solving in practical situations (Rae 2009). Another learning strategy is PBL or Problem-based learning where learning is student-centered with teachers acting primarily in the role of facilitators (Hanke, Kisenwether and Warren 2005). Such a strategy significantly increases entrepreneurial self-efficacy and the ability to cope with uncertainty, both key characteristics of successful entrepreneurs. Similarly, business planning education has also been used in different academic settings based on the assumption that students who have learned to plan should demonstrate increased mastery, knowledge, and comprehension that would assist them in the process of starting a new firm (Honig 2004).

However, academic-led studies on the most relevant professional skills suggest that communication and writing skills remain relevant while analysis skills provision needs refocusing (Cuthbert 1994; Wong 1998; Ozawa and Seltzer 1999; Alexander 2001). Educational policy efforts aimed at stimulating entrepreneurial activities should primarily focus on developing creativity, critical thinking, and reflection among individuals, which in turn can have a profound influence on both their motivation and ability to develop entrepreneurial knowledge through their professional lives (Politis 2005). Rae (1997) asserts that only the combination of knowledge and skills with the right attitude and confidence can turn a graduate into an entrepreneur. Moreover, educational efforts should start early in the system, and not only at its very end (Johannisson and Madsén 1997).

Entrepreneurial learning is not accepted or adopted fully by busi-

ness schools or, indeed, by higher education as a whole, as their values of practical and emergent learning challenge the 'bureaucratic control' culture of academe, which privileges programmed knowledge (Gibb 2002; Rae 2009).

DOES ENTREPRENEURIAL LEARNING REQUIRE ENTREPRENEURIAL UNIVERSITIES?

Entrepreneurship ideas should be incorporated in higher education at both the organizational level (Clark 1998) as well as the program level (Volkmann 2004), accordingly. Students need programs that support a range of ways that are often unplanned, emergent, short-term and non-sequential; that is, entrepreneurial (Gibb 2002; Atherton 2007). Hawkins (1998) has long advocated for planning education to incorporate basic management theory and skills. Pedagogical techniques should be developed that focus on applied hands-on activities, resulting in experiential learning, as opposed to the teaching of general principles (Honig 2004). Just as graduates should be able to write an essay expressing their personal throughts and a scientific paper, placing evidence against hypotheses; so should they write a project plan, setting forth an idea for a new social or business project and a test of its viability (Etzkowitz and Zhou 2008).

Universities and academe have been criticized for their inability to provide such programs. Terenzini (1996) states that 'we must consider why we do research and write.' He asks pointedly: 'Do we write for publication and, thereby, enhanced prospects for promotion and tenure? Or do we write to make a difference in the lives of others?' The academic profession is embattled and its status has been questioned (Rinne and Koivula 2005). Academics are prone to teach what they know, not what their students or stakeholders need (Miclea 2004). The expression 'stakeholders' is more and more used to denote the environment of a university. They include students but also graduates, people of the neighboring towns and villages, local and regional authorities, and the business sector (local and national) (Pawlowski 2001). In current universities, students use learning 'pushed' at them through programmed or curricular structures, instead of engaging in the dynamic experience of developing their venture 'pulled' learning

as they require it in response to their questions and problems (Mumford 2006; Rae 2009). This process supports thinking 'inside the box' whereby students are taught an ideal method and are encouraged to conform to it (Honig 2004).

[12] Universities are faced with the question of the relevance of their study programs and their research projects, as the skills base of the economy is changing, an increasing number of voices claim that the disciplinary basis of universities is becoming irrelevant (Meira Soares and Amaral 1999). The model of interdisciplinary education leading to a degree – for example in business and law or political science and IT – hardly exists (Pawlowski 2001).

Universities were also described as professional bureaucracies, in which real power lies at the level of the classrooms and the research laboratories (Mintzberg 1979). As Steve Fuller (2005) writes, it may also be argued that the university represents 'an impossible ideal' that has never been realized and has been involved to cover a multitude of sins, especially 'the velvet glove approach' to the perpetuation of rule by elites. The whole university culture becomes questionable. Miclea (2004) describes this culture as being built on individual performance where students are evaluated through individual examinations, and the individual faculty not the team is promoted through individual achievements (published articles), and where departments represent collection of academics instead of working as a team animated by a single project. All these characteristics favor individual performance instead of an orchestra. This practice is neither good nor bad; however, it is simply not favorable for the training and development of self-employment related skills (Miclea 2004). Many faculty members lack also the incentives to engage in innovative entrepreneurial education processes as well as the facilitation skills required to make the format work well (Hanke, Kisenwether and Warren 2005).

Despite fundamental changes in the environment over the course of centuries, the university, with its long traditions, is one of the rare institutions that has preserved its basic characteristics and status in society (Rinne and Koivula 2005). Although it is often assumed that there is one main academic model, which was born in France in the 13th Century and which has spread around the world (Altbach 1996).

However, development in other parts of the world has not necessarily followed the same pattern because of varying historical, cultural and economic contexts (Husén 1996).

In the recent years we have seen many universities taking specific actions to adapt to the new social and business needs. Barnett (1994) [13] has defined the changing situation as a shift 'from higher education in society to higher education of society.' Universities have developed technology transfer capabilities and extended their teaching from educating individuals to shaping organizations through entrepreneurial education and incubation (Etzkowitz and Zhou 2008). Formal degrees in entrepreneurship studies are typically hosted by a business school/faculty to provide a mix of theoretical grounding in business management as well as training in practical aspects of entrepreneurship (Frank 2007). Such programs have proliferated since their inception in 1947 (Volkmann 2004). One initial measure to increase the level of entrepreneurship skills teaching would be to make relevant learning outcomes more explicit and to contextualize them in respect to employability and entrepreneurship (Frank 2007).

The need for the universities to meet the challenges of the future has introduced the concepts of 'Learning University,' 'Innovative University,' and the 'Entrepreneurial University' (Kristensen 1999) as opposed to the teaching university, the research university, the elitist university, and the mass university which are based on disciplinary education and research (Rinne and Koivula 2005; Etzkowitz and Zhou 2008). These are more flexible organized universities that adapt (or pro-act) more easily under new circumstances (Meira Soares and Amaral 1999).

The fall of the *ivory tower* and the emergence and consolidation of the entrepreneurial university is the result of a complex interplay between exogenous and endogenous factors combined in different ways in different countries (Etzkowitz et al. 2008). Endogenous factors include internal transformations within the university or other bottom-up organizational and management changes driven by changes in the intellectual property regimes (Etzkowitz et al. 2008). On the other hand, governments at the national, transnational and regional levels increasingly expect universities to play a greater role in economic and

social development (Etzkowitz and Zhou 2008). Industrial development will increasingly depend upon knowledge, a situation that makes education a major economic resource (Amaral 1991). One should refer to a recent statement by Peter Drucker (2000) who claims that
[14] education has become the main item of the Gross Domestic Product. Governments expect universities to do much more for society in solving economic and social problems, but at the same time they are reducing their financial support and are becoming unreliable patrons (Kristensen 1999). Slaughter and Leslie (1997) found that governments gradually give more priority to commercially oriented research at the cost of funding for basic research, and that public funding of education is continuously decreasing. This has led to an increased university autonomy which has also entailed greater responsibility (Meira Soares and Amaral 1999). A new actor, the 'market,' has replaced public administration as the driving force behind the development of higher education, as well as the main employer of its training and research products (Neave and Van Vught 1994). Universities will become less independent and less disinterested as they engage in joint ventures with industries, and they are forced by budget cuts to seek profit-making activities not only to accompany the increasing of the creation of knowledge but, in many cases, simply to survive (Meira Soares and Amaral 1999).

A knowledge-based socio-economic regime requires an institutional framework of university-industry-government (a tri-institutional model of society), each taking the role of the other while fulfilling traditional missions (Etzkowitz et al. 2008). Etzkowitz and Viale (2010) call this the triple helix model, where the relationships between universities, industry and government become intertwined, creating activities of collaboration through which the different rationalities of universities, government and industry are bridged and merged (Gjerding et al. 2006). Through the imagination, ambition, leadership and cooperation of individuals from universities, industry, and government, all the three institutional spheres participate in the birth of hybrid institutions and the emergence of a new phenomenon of 'industrialization' of the academy and 'scientification' of the industry (Etzkowitz and Viale 2010). This evolutionary pattern gave rise to a third academic

revolution, in which the university becomes an increasingly important platform for societal transformation instead of merely integrating research and economic and social development as academic missions (1st and 2nd academic revolutions) (Etzkowitz and Viale 2010). This calls for more reinforcement of the global role of the universities – from basic science to innovation and production. In a third academic revolution, the entrepreneurial university becomes the centre of gravity for economic development, knowledge creation and diffusion in both advanced industrial and developing societies (Etzkowitz and Viale 2010). [15]

This development will blur the distinction between basic and application-oriented research (Kristensen 1999). The traditional academic disciplinary borders will also disappear (Etzkowitz and Viale 2010), which will create new forms of integrated knowledge (e.g. the technological projects of 'smart dust' arising from nanotechnology and ICT or biochips from biotechnology and information technology).

Burton Clark (1998) describes the 'entrepreneurial university' as follows: 'The entrepreneurial response offers a formula for development that puts autonomy on a defined basis: diversify income to increase financial resources, provide discretionary money and reduce dependency; develop new units outside departments to introduce new environmental relationships and new modes of thought and training; heartland departments that can look out for themselves, raise money, actively choose among specialties, and otherwise take on an outlook; evolve a set of overarching beliefs that guide and rationalize the structural changes that provide a stronger response capability; and build a central steering capacity to make large choices that help focus the institution.' The critical factor for a university to be entrepreneurial is its organizational culture that must be characterized by a collective mindset in which entrepreneurship is facilitated in a combined top-down bottom-up fashion, including a high tolerance for risk-taking (Clark 1998). An important part of organizational culture is how flexibly rules are interpreted, and more specifically how rules support entrepreneurship, but also when not to apply rules and rely on broad, activity-directing instead (Gjerding et al. 2006).

The entrepreneurial university exemplifies also other characteristics:

- To become entrepreneurial a university should develop high quality teaching and implement new pedagogical methods and focus on mobilizing the resources of students for the learning process (Kristensen 1999). The university should also have the ability to integrate research-based learning, market-sensitive teaching and life-long learning programs (Miclea 2004), professional, tailor-made and short courses (Cummings 1999), and project-based courses with inter-disciplinary groups and action-learning programs. Learning by discovery and teaching and learning by means of research processes must become the norm (Clark 1991).
- Raising funds from companies and private bodies to reinforce the university profile as a leading international research and education institution (Kristensen 1999). The entrepreneurial university should ensure outside funding by adapting to market-type modes of action or what Slaughter and Leslie (1997) call *academic capitalism.* Such strategies include patenting, subsequent royalty and licensing agreements, spin-off companies, incubators, arm's-length corporations and university-industry partnerships. Moreover, the MIT and Stanford cases are often taken to represent the necessity for a highly developed research university prior to the emergence of economic entrepreneurship in either its narrow economic or broader social formats (Etzkowitz and Zhou 2008). The funds raised from all the above-mentioned activities are generally spent for investment in research and education.
- Developing business research centers having active business participation in communities, on advisory boards, and steering groups for specific projects, and a strong commitment to developing science parks in the region (Kristensen 1999).
- Constructing a wide and deep portfolio of third-stream income from campus services and alumni fund raising (Clark 1998).
- A steering capability that is neither centralized nor decentralized. It could be characterized as 'centralized decentralization' (Clark 1998). The role of top-leadership in defining strategic issues for the institutional agenda is crucial (Kristensen 1999).

- The university Management should strongly encourage entrepreneurial activities among faculty through several actions: developing income-generating products and marketable services, consulting, business linkages, interdisciplinary partnerships and knowledge production in ongoing enterprises, and producing income from technology transfer activities which provide intellectual property (Slaughter and Leslie 1997; Subotzky 1999). [17]
- Faculty should be encouraged to play the role of *entrepreneurial scientists* and network builders (Etzkowitz et al. 2008), having a triple academic career: basic scientist, innovation researcher and entrepreneur (Etzkowitz and Viale 2010).
- Supporting staff and faculty members to have the necessary competencies in strategic management, project management, knowledge management, and a clear understanding of modern pedagogy, which will make them *academic managers* (Zaharia and Gibert 2005).

According to Hay et al. (2003) barriers to the development of an entrepreneurial culture in universities include the collegial, professional and bureaucratic nature of universities. A university cannot become entrepreneurial by simply creating innovative structures; it must indeed change its conceptions regarding the mission of the university in society (Zaharia and Gibert 2005). The process of entrepreneurial transformation is lengthy and varies from one university to the other, influenced as it is by traditions, economic development, cultural factors, and legislative frameworks (Zaharia and Gibert 2005).

Through the entrepreneurial transformation universities should not become enterprises, nor strive to be more like enterprises (Meira Soares and Amaral 1999). As Declercq (1987) stated 'only if universities remain very different from industry, will industry continue to come to them for ideas and solutions.'

THE GENESIS OF THE THEMATIC ISSUE

This Thematic Issue is an outcome of the 3rd EMUNI Conference on Higher Education and Research, organized in Portorož – Slovenia from September 23rd through 25th 2010, and that had as a theme

'Entrepreneurial Learning and the Role of Universities.' The organization of this conference stemmed from EMUNI's interest in promoting a scientific debate revolving around the importance of adopting entrepreneurial practices in Euro-Mediterranean Universities as a
[18] way to ensure their effective contribution to the economic and social development of the whole region. This has been also demonstrated through several actions that EMUNI has recently undertaken, including, for instance, the project that has been conducted jointly between EMUNI and the European Training Foundation (ETF) to assess the entrepreneurial learning practices in different academic settings with the involvement of experts from different Euro-Mediterranean Universities (e.g. Al Akhawayn University in Ifrane – Morocco, the International School for Social and Business Studies, Celje – Slovenia, University of Sousse – Tunisia, and University of Nova Gorica – Slovenia).

The rationale of the Thematic Issue is grounded in the relationship between entrepreneurship and learning effectiveness in higher education. The selection process took into consideration our interest in publishing articles that examines, conceptually and empirically, the process and outcomes of entrepreneurial learning practices in academe. The topics of interest included, but were not limited to:

- University/Enterprise Cooperation;
- University Fund Raising and EU Projects;
- The Role of Entrepreneurial Education in the Development of Priorities of the Euro-Mediterranean region;
- Lifelong Learning, Training and Education;
- Increasing Employability of Graduates;
- Recognition of Knowledge, Gained in Practice;
- Learning Entrepreneurship in Different Cultural Environments;
- National Higher Education Policy on Entrepreneurial Learning;
- The Mediterranean Business Development Initiative.

In total, we received 52 submissions mostly from Europe. All the articles were subject to a double review process. On the basis of the comments of the reviewers and the guest editors, seven articles were finally accepted for publication and these represent a sample of

entrepreneurial learning experiences in the Euro-Mediterranean area.

The articles fall into three groups. First there is one conceptual article which provides a learning model for the development of entrepreneurial intentions. The next five articles are based on empirical investigations of entrepreneurial learning strategies and competence development measures in higher education. The last article describes the principles of the entrepreneurial university and tests them in an academic institution.

The articles collected in this Thematic Issue represent a milestone in the process of strengthening educational innovation and the cooperation ties between University, Industry and Government. However, they remain an attempt to define the critical factors required to institutionalize such best educational practices in Euro-Mediterranean Universities and help them fulfill their mission to contribute to sustainable economic and social growth.

In the first article, Valerij Dermol introduces a five-construct model of entrepreneurial learning that integrates entrepreneurial competences, self-efficacy, entrepreneurial intention, self-employment or enterprising behavior and teaching methods. In their article, Monica Wawer, Marek Milosz, Piotr Muryjas, and Magdalena Rzemieniak discuss a study of students' opinion regarding the use of simulation games as a teaching method. The article by Gruber-Muecke, Tina Kailer Norbert, Grabner Bernhard, and Stoegmueller Cornelia details an operational measure of competence development and examines both its validity and reliability in two well-defined populations, namely students and graduates of business schools. In her article, Marja-Liisa Kakkonen analyzes what business students learn in terms of entrepreneurship and what strategies they use in their learning during the first year studies. The article by Selda Önderoğlu, Bugay Turhan and Esin Sultan Oğuz examines how the satisfaction of outgoing Erasmus students can be broken down into assessments referring to broader aspects of the students' entrepreneurial thinking during the Erasmus period. In her article, Rita Klapper reports on classroom experimentations conducted in different European contexts using repertory grids, the methodological tool of Personal Construct Theory (PCT) in entrepreneurship teaching. Finally, the article by Dino Ar-

naut highlights the importance of the entrepreneurial university model and analyzes the current characteristics of the University in Zenica to identify the transformations required to become entrepreneurial.

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