



*Entrepreneurship Learning in Higher Education: Practice-based and Action Learning Approaches*

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**Entrepreneurship Learning in Higher Education:  
Practice-based and Action Learning Approaches**

Mohamed Yacine

**A Thesis Submitted in Partial Fulfilment of the Requirement of  
Sheffield Hallam University  
for the Degree of Doctor of Business Administration**

**In collaboration with Business School Netherlands**

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## **Abstract:**

In higher education institutions, entrepreneurship learning grounded in practice-based and action-learning approaches may help to develop entrepreneurial competencies of students enrolled in entrepreneurship programmes. Several theoretical perspectives, such as social learning theory, positioning theory and action learning theory, are used to evaluate the degree of entrepreneurial competencies acquisition. In entrepreneurship education programmes, using practice-based and action-learning methods could be a significant factor in developing student competencies, including the ability to start a business, and in improving student attitudes towards entrepreneurship. This thesis aims to answer the following questions: (1) Which skills and competencies must be targeted in entrepreneurship education? (2) How could action learning and practice-based learning be combined to elaborate a more efficient learning model? and (3) What are the profiles and roles of role-sets (teams) in charge of the entrepreneurship education programme delivery? For this purpose, the researcher conducted an action research case study with 49 students enrolled in an entrepreneurship course. Subjects of the study were divided, respectively, into three groups over a period of three academic years, using a research methodology that combined several qualitative techniques. Participatory observation, semi-directive questionnaires, and analysis of pedagogic manual documentation were utilised to examine differences in student entrepreneurial intentions and level of mastery of entrepreneurship competencies at and after graduation.

The thesis has six chapters. The first is dedicated to the research context and objectives. The second chapter is about literature review and how the concept of entrepreneurship is articulated among various fields of research. The third emphasises methodology, while the fourth presents findings. The discussion and conclusion are in Chapter Five, and Chapter 6 concludes the thesis with the author's personal reflections.

The study provides evidence that entrepreneurship education based on action-learning and practice-based learning methods may positively influence the entrepreneurial intentions of students and could lead to higher levels of student mastery of entrepreneurial competencies. However, the evidence presented is an action research case study, and the actual results could be reinforced by additional studies to avoid the impact of interpretation bias. Further large-scale research is needed to verify or refute the effectiveness of the proposed model.

**The thesis's conclusion provides a model of entrepreneurship education that focuses on entrepreneurial competencies acquisition as a complement of business and management courses used in higher education for teaching entrepreneurship.**

**Keywords:** Entrepreneurial competencies, entrepreneurial institutionalisation, entrepreneurial students, venture creation, university, competency acquisition, learning, facilitation, practice-based learning, action learning, entrepreneurial education.

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## **Chapter 1. Context and research purpose**

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### **Introduction**

In this introduction, the perspective of the research is given in a wide range of entrepreneurship fields, and then some facts are shared that support the need to provide a local Algerian perspective of the study; at the end, the scope of the research will be suggested.

This first chapter presents an overview of the scope of the research, its structure, aims and objectives, and then provides some factual elements about the Algerian context in terms of socioeconomic and entrepreneurship ecosystem perspectives. The aim of this chapter's order is to first provide contextual elements that justify the need to undertake the described research, which is the second and most important piece of this chapter. The third part explains the practice of teaching entrepreneurship in higher education in the Algerian context, and finally the chapter's conclusion reinforces the need for such research in the Algerian context. It is important to frame the research according to what has already been produced on the same subject and in the same context. A substantial amount of research has been produced related to the analysis of entrepreneurship ecosystems (SAHWA 2014, Beggar 2016, Boukhari 2016, Sedkaoui 2019), linking the internal actors and external factors in the process of integration of entrepreneurship culture among universities. Consequently, the aim of this study was to investigate the effectiveness of entrepreneurship teaching.

As far back as 2011, a study published by the World Bank under the title "SME innovators and gazelles in MENA" argued that fast-growing small and medium enterprises (SMEs) are the most likely to generate new jobs. Acknowledging that innovative entrepreneurship is a potential driver of job creation, policy makers have initiated efforts in order to stimulate the launch of new companies that can scale rapidly and provide jobs. Subsequently, various public and private organisations have developed entrepreneurship programmes with tailored services to support entrepreneurs. According to a survey conducted by the General Entrepreneurship Monitor (GEM, 2011) in Algeria, 39.5% of young men and 44.2% of young women are reluctant to start a business because of fear of failure.

Algeria introduced subsequent policy measures to encourage youth self-employment aimed at both educated and non-educated young people. Referred to as ANSEJ (National Agency for Youth Employment Support), CNAC (The National Fund for Unemployment Insurance),



among others, these government entities mainly focus on increasing access to funding and bank loans. Yet studies show that a large number of new businesses face activity interruption (GEM survey 2011), which may suggest that non-financial support, such as technical advice and capacity building, is also needed. This illustrates the facilities and advantages that exist and which motivate entrepreneurs to start a new business where new value creation is at the core.

Using this evidence, and in order to obtain more understanding toward shaping entrepreneurship strategies in the Algerian context, this study aims to identify and analyse the prevailing conditions of entrepreneurial teaching in the higher education context through a field study conducted in some Algerian universities. The primary objective of this study is to address the efficiency of the entrepreneurship programmes that have had influence engagement in entrepreneurial activities, as well as the critical factors of the entrepreneurship teaching process. Understanding the current status helps identify opportunities and assists in developing plans for effective intervention. The informal economy is also preventing entrepreneurship capabilities from rising and becoming more visible in the country's statistics. Many young people, including university-educated workers, choose to stay in the informal sector rather than applying to a national scheme for youth employment or business development. In addition, formally employed young people are still far more attracted to working in the public sector rather than in private companies. Public sector jobs are regarded as being more stable in terms of job security and as having better benefits (salaries and social security). As entrepreneurship implies risk taking, informal employment and preference for the public sector stability further push young people away from self-employment. Entrepreneurship application in the ecosystem is varied, and in order to analyse the existing programmes that support entrepreneurship, the research raises the issue of the students' learning experience at university and its immediate application in the field of entrepreneurship.

## **1.2 The need for the research**

This study builds on existing research and develops a conceptual framework to understand what factors influence the emergence of entrepreneurial activities. As an exploratory and qualitative analysis, it is supposed to help explain the factors that impact the most the effectiveness of the entrepreneurship teaching process in Algerian universities. The aim of the research is to study the issues of this entrepreneurship program, knowing that only 4% out of

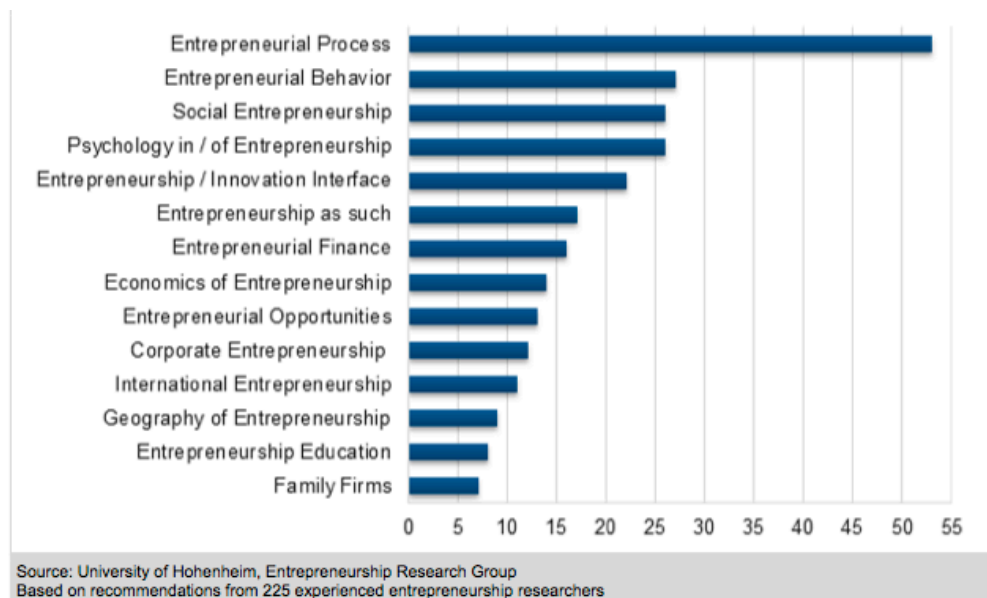
400 (*La Revue des Sciences Commerciales, EHEC 2015*) students started businesses. Some entrepreneurship programs have emerged since 2012. One of the most structured as well as supported is FIE, which in French stands for “*formation innovation entreprendre*”, or training in innovation and enterprising. This entrepreneurship higher education program is supported by INSA “*Institut national des sciences appliquées*” of Lyon, France. INSA is the French national institute for applied sciences, in addition to languages, philosophy and culture. INSA’s engineering students benefit from specific training in management and issues inherent to the corporate world. These teachings include active pedagogies that aim to provide students with opportunities to learn about citizenship, gain autonomy, and develop a sense of responsibility while encouraging creativity and innovation. The international dimension has always been a priority in the development strategy of INSA Lyon, resulting in almost 50 partners worldwide. Algeria is one of the partners, with some leading universities in business and applied science participating. The scope of the research is concerned with entrepreneurship programs supported by INSA Lyon, where different students from several leading Algerian universities are gathered in the same cohorts those universities are:

- *EHEC: National Higher Institute of Commerce Studies*
- *ENSTP: National Higher Institute of Public Works*
- *ENSSMAL: National Higher School of Marine Sciences and Coastal Management*
- *ESI: National Higher School of Information Technologies*
- *ENPO: National Higher School of Polytechnic Studies*
- *ENSA: National Higher School of Agronomy Studies.*

Entrepreneurship as a research premise is principally established within the academic collection of core disciplines. The field, however, remains a dynamic one, a status at least partly due to its research objectives and the numerous emerging practical phenomena.

Entrepreneurial behaviour quite often relates to innovative behaviour, and this creates an ever-varying landscape of entrepreneurship. Despite its academic acceptance, the research field is still very young compared to the field of management. Even though entrepreneurship as a practice is as old as management in the field, Schumpeter’s (1934) concept of entrepreneurship started to be spread only in the first half of the last century. Entrepreneurship continues to be characterised by its rapid development especially regarding research topics, but also in reference to the methods explaining entrepreneurial phenomena. This development

of entrepreneurship as a research discipline has been illustrated regularly in academic publications both at the national and international levels. Numerous publications have made valuable contributions to the understanding of entrepreneurship as a research field moving forward, but their articles are usually characterised by a backward-looking approach, which means they can only provide a limited indication of future developments. Figure 1.1 displays the 14 most frequently mentioned topics on entrepreneurship in 2018. It is important to note that all topical areas on this list have some potential. Even topics mentioned comparatively rarely should be considered interesting, primarily because they were mentioned by the study participants and thus, compared to other topics, have not been ignored. Moreover, a topic receiving fewer nominations does not necessarily indicate that it has less potential than a topic with more nominations; the topic might still be one that is growing in importance (Kuckertz and Prochotta, 2018).



*Figure 1.1. Most promising topical areas in entrepreneurship research*

*Source: University of Hohenheim, Entrepreneurship Research group*

The perspective of this research is quite interesting because of its multiple approach dimensions; indeed, the research aims to understand an existing entrepreneurial process based on an academic context. It aims to focus on the skills and behaviours that need to be learnt in order to maximise the entrepreneurial process efficacy, and of course, as it is in an academic context, it is directly related to entrepreneurship education.

The next section provides clearer ideas about the objectives and the preliminary research questions.

### **1.3 Aims, objectives, and research questions**

This author's DBA studies started in late 2013 and, from the very beginning, studying the influence of culture on entrepreneurial behaviour development was a primary interest. This focus was initiated during the course of DBA studies at Sheffield Hallam University in the United Kingdom as well as in Buren at the Business School Netherlands, and then in Prague in the Czech Republic. It was subsequently refined as progression was made in elaborating on the pertinent literature, and more importantly in interacting with the DBA faculty. This thesis consequently focuses on the entrepreneurship teaching effectiveness in the higher education context with the aim of studying the phenomenon of entrepreneurial behaviours and skill development from the perspective of factors that impact the most the acquisition of entrepreneurial competencies.

Building upon a view of the impact of entrepreneurship teaching on students as developed in relation to the students' perceptions and their environment, and through a process of creating a new venture, facilitation of entrepreneurial behaviour development is explored through three preliminary research questions:

- ✓ RQ1: Which behaviours or skills are learned and contribute immediately to the process of creating a new venture?
- ✓ RQ2: How can entrepreneurship programme contents facilitate the development of entrepreneurial behaviour and skills?
- ✓ RQ3: How can interaction between the students and teachers facilitate the development of entrepreneurial behaviour and skills?

### **1.4 Context of entrepreneurship in Algeria**

In this section, we will present some contextual elements related to Algeria socioeconomic contemporary evolution since its independence up to today. Indeed, the Algerian culture and demographic dimension is quite singular when compared with other neighbouring countries in

a general context and, moreover, when speaking about entrepreneurship. Since 1990, Arabic has been Algeria's official and state language, with Amazigh (Berber) also being recognised as an official language. French is not an official language, but it is widely used within the government bodies as well as in universities because of French colonial ties.

### **1.4.1 General context**

After independence from France, Algeria experienced major changes during the 1960s in political, economic, and socio-cultural environments. The country went through a period of socialism (1962-1988) and then the opening of the market economy because of internal social pressure in parallel with the end of USSR influence and support. After a decade of economic expansion, which lasted until the 70s, Algeria experienced two decades of crisis, following a drop in the price of oil, the primary source of revenue in foreign currency. As a result, the state opted to borrow from the World Bank albeit under drastic and unpopular conditions. This led to the privatisation and restructuring of several state companies as well as the dismissal of thousands of workers. Driven by huge unemployment figures in the country, and influenced by the success of entrepreneurship strategies in the United States in addition to the pressure from European Mediterranean neighbours to limit illegal youth immigration, Algeria embarked on a strategy to encourage young people to start their own businesses and participate in the creation of jobs and wealth.

A strategy of entrepreneurship started in the late '80s. Thanks to liberal economic reforms, entrepreneurship emerged and grew. Ninety-one percent of existing enterprises in 2005 had been created after 1990 (Hammouda, Lassassi, 2007) and since then, the number of companies has continued to increase. *At the end of 2018, the number of private SMEs (small and medium sized enterprises) amounted to 480 000* (Algerian trade office, 2018).

Entrepreneurship has become a strategy for youth employment and socio-economic development. *Small business is poised to acquire a dual legitimacy. Firstly, it has related to the factors of self-realization and social integration. And economic, as SMEs have been in recent years spearheaded producing innovations, development of new services and creating jobs* (Tunes, 2003, p. 13).

### 1.4.2 Entrepreneurship in Algeria

A project named “Researching Arab Mediterranean Youth: Towards a New Social Contract” (SAHWA) was funded by the European Union. The EU published a report on the project that shows evidence that supporting high-potential enterprises requires a set of policy measures and involves a variety of public, private, and civil society organisations and institutions in order for a dynamic entrepreneurship ecosystem to take shape. Five Arab countries were studied in this project, among them Algeria. The study of the Algerian context shows that the government has made efforts to boost entrepreneurship; however, entrepreneurship activity remains low and high-impact enterprises are difficult to identify. Examination of case studies with a wide-range of support and education programmes for youth and entrepreneurs reveals, as a conclusion of the study, that there is no “one-size-fits-all” approach, and that local contexts need to be individually addressed.

This thesis will delineate the particularity of entrepreneurship in the Algerian context through two different points of view.

The first one was elaborated in Algeria in late 2012 by what is now called “The Big Idea Center”, the hub for student entrepreneurship in Pittsburgh, USA, in the framework of a US-Algerian exchange programme (Carryer, 2012) to assess the state of entrepreneurship there, as well as make recommendations as to what to do to improve Algeria’s start-up and innovation ecosystem. This programme was made possible through the “Embedded Entrepreneur for Project Olympus” initiative by Carnegie Mellon University to encourage and support entrepreneurship. The diagnosis indicated that Algeria suffers from a similar fate as some European countries, such as Portugal, which has 80% of the entrepreneurial puzzle pieces, but lacks a critical 20%.

The methodology of the diagnosis included meetings with several pre-start-up entrepreneurs and a few mentors and coaches at the ANPT (*Agence Nationale de Promotion et de Développement des Parcs Technologies*), which oversees supporting entrepreneurship in the information and technology sector.

ANPT hosts a dedicated incubator in SidiAbdellah just outside of Algiers, which is financed and supported by the government. Some qualitative comments of the diagnosis pointed out the energy, passion, commitment, and intelligence among the young entrepreneurs, and

witnessed dedication among the coaches. What was missing, and this was the same for Portugal, was entrepreneurship know-how.

The main view of Carrier (2012) is that Algerian entrepreneurs lacked the culture of entrepreneurship, which is supposed to be supported by the private sector in particular and the economic ecosystem in general. In addition, the diagnosis supports some of our pre-understandings about entrepreneurship challenges in Algeria.

Algeria had the money, the desire, and lots of highly trained young potential entrepreneurs at that time—but lacked an entrepreneurial culture. This means that Algerian youth entrepreneurs do not usually possess the necessary attitudes, values, or skills, and they also do not usually have opportunities to work in organisations that are characterised by risk taking. While they have the infrastructure to support entrepreneurship through the physical incubators, they lack the more important infrastructure of mentorship, capital, and customers. They do not know how to be market driven.

The incubator space at ANPT is impressive and includes probably more than \$100M of infrastructure (see Figure 1.2), but it seems that its potential could be used in better ways, especially in the utilisation of its various facilities to become a hub of entrepreneurship ecosystem in Algeria.



***Figure 1.2. Infrastructure of ANPT (SidiAbdellah) incubator in Algeria.***

SidiAbdellah represents the entrepreneurial expectations of Algeria. The site has plans for hotels, research buildings, and a university, but to date these have yet to be realised, with the city's development focusing rather on economic and social activities.

According to Carryer's (2012) analysis, Algerian entrepreneurs do not apprehend the importance of market development and the process of finding customers and understanding their needs in order to create solutions that large numbers of consumers or businesses will purchase. Doing market and competitive research to understand customers and their needs is not a priority for Algerian entrepreneurs, and this results in a lack of differentiated services and products in the market. The government is often considered the first customer. That is adequate but at same time a dire warning for Algerians, who assume that doing business with the government is the beginning and end of a business, but it's not scalable (Carryer, 2012).

The second perspective is the one proposed by Boukhari (2016), an Algerian researcher for CREAD, the research centre for applied economics and development, an institution that is considered to be the leader in its field in Algeria. Boukhari's main view is that Algerian entrepreneurs lack entrepreneurship culture, which is supposed to be supported by the government through education and teaching.

Boukhari (2016) takes the GEM (Global Entrepreneurship Monitor project, 2015) perspective as a reference in his analysis of the entrepreneurship situation in Algeria. This GEM (2015) project focuses on the evolution of entrepreneurial activity in the world as well as its related factors. The approach of GEM (2015) relies on Porter's (2002) conceptual approach of competitiveness, which is defined in a microeconomic framework. The GEM (2015) project measures the entrepreneurial context at a national level, through a survey of national experts, where the entrepreneurs' profiles are measured at an individual level via a survey dedicated to a population of adults. The GEM project in 2015 studied 44 countries with different levels of economic development, covering three aspects of the entrepreneurial activity.

The first conclusion of GEM (2015) was that when the economy of a country is highly competitive more entrepreneurs are unwilling to start a business. Second conclusion: when the economy is highly competitive more entrepreneurs are ambitious. Third conclusion: when the economy is highly competitive more entrepreneurs are innovative.

Boukhari's (2016) conclusion suggests that the Algerian entrepreneurs' profile is similar to other countries with a developed economy, and by extension those entrepreneurs are subject to the same factors, such as support, ambition, and innovation. Boukhari (2016) complements this by arguing that the government can influence the competitiveness of the economy of its country by encouraging the emergence of a culture of entrepreneurship, especially in schools and universities and other spaces of vulgarisation of the entrepreneurs' profiles.

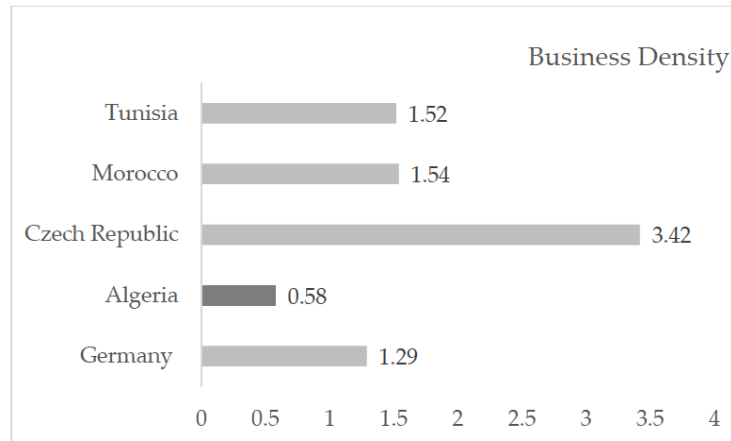


Indeed, since 2012 we have seen some entrepreneurial initiatives in Algeria. Some of those initiatives are economy driven, such as the creation of governmental agencies, namely ANSEJ (The National Agency for Youth Employment), which oversees financing small business support. Since its creation in 1997 up to 2017, this agency has financed more than 372,000 ventures, but only 28% are initiatives of university graduate students.

There is a clear link between Boukhari's (2016) and Carryer's (2012) points of view, namely the lack of entrepreneurship culture; however, the former argued that it is necessary to work more on education and teaching, and the latter in evolving the private sector more in financing, mentoring, and coaching. Indeed, it was evident that paying attention to different analyses of entrepreneurship in the Algerian context is necessary. Appealing to a clearer idea about perspectives related to entrepreneurship activities in general, the next paragraphs give some quantitative facts related to entrepreneurship in general and from the higher education perspective in particular.

Each year since 2012, 1.6 million new students have entered university, and approximately 350,000 are graduated, but only an average of 5100 businesses are created by these university student graduates. This indicates that only 1.5% of those students attempt an entrepreneurial experience. Algerian entrepreneurs are mostly below 40 years old with a higher education degree, and work according to the slogan: "Invest capital to make more capital" (Beggar, 2016). They have the following characteristics: a strong attachment to family values; collective spirits (the majority of early recruits are friends and family); flexibility in dealing with their employee's needs; and lack of long-term vision for the younger generations, as immediate profit is a key concern along with the availability of opportunities and the support of government funding.

According to the World Bank Group data in its entrepreneurship project, Algeria had a business density of 0.58, which means that out of 1724 working age people (between the ages of 19 to 64), there is one person who goes for a start-up. This density is one of the lowest in the region, as shown in Figure 1.3 below.



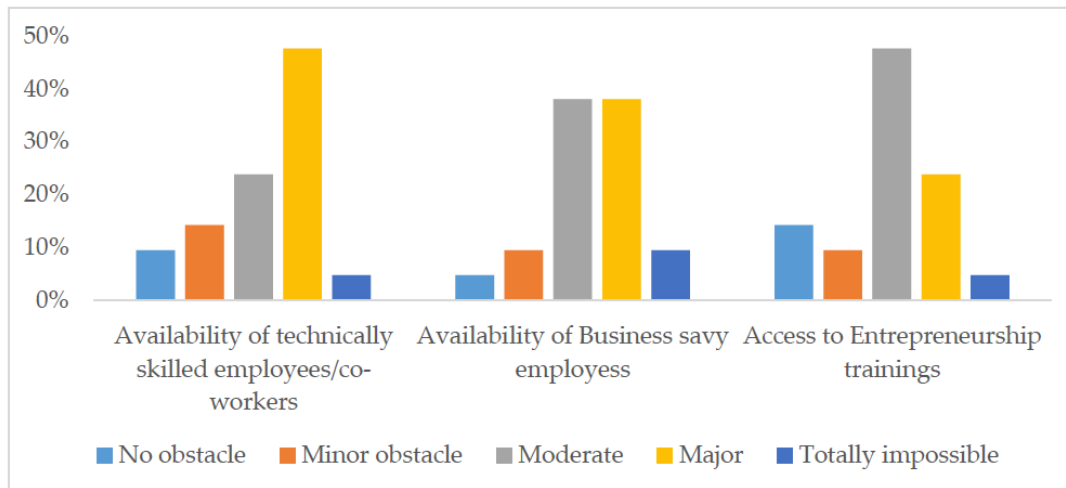
***Figure 1.3. Business density, Data source: World Bank, entrepreneurship report (2016)***

Indeed, regarding the Algerian educational system, Article 53 of the Algerian Constitution stipulates that for all Algerians:

- Education is free for all categories
- The right to education is guaranteed
- Basic education is obligatory until the age of sixteen

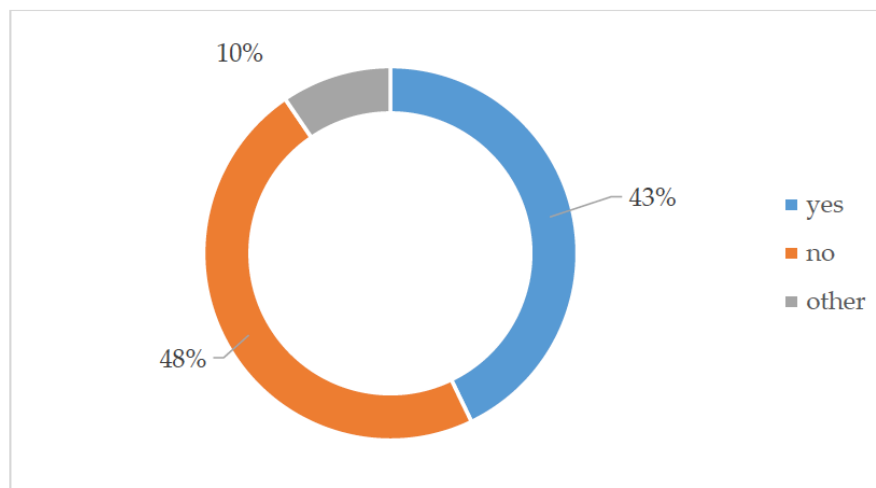
The network of higher education consists of 97 institutions: 48 of them are universities delivering bachelor/master/doctorate studies and 20 are national higher institutes (*écoles nationales supérieures*) delivering engineering degrees. In 2015, there were more than 1.3 million university students in the country. This is a high number that indicates the availability of technical/marketing skills in the market according to the national employment agency (ANEM, 2016).

The entrepreneur's satisfaction with human capital is low. For between “no obstacle and minor obstacle” for the availability of technically skilled employees/co-workers, the percentage is 24%. It is 15% for the availability of business-savvy employees, and another 24% regarding access to entrepreneurship trainings (Beggart, 2016). Entrepreneurs tend to look for individuals in their immediate network circle, resulting in difficulties finding resources with the missing skills, as the immediate circle is composed of people who share the same orientations, background, and most of the time similar technical skills (see Figure 1.4).



***Figure 1.4. Obstacles with human capital (Beggar, 2016)***

We find that only 43% had training on the subject included in their university curriculum, and 10% benefitted from education within the competitions they took part in. 17% of the information technology start-ups reported registering at least one patent, and cooperation between the research and development (R&D) sector and the industry was marked totally impossible by an astonishing 19%. While the majority (57%) see it as a major obstacle when answering the question, “To what degree is cooperation between the R&D sector and the industry an obstacle to on-going operations of your start-up?” (See Figure 1.5) (Beggar, 2016).



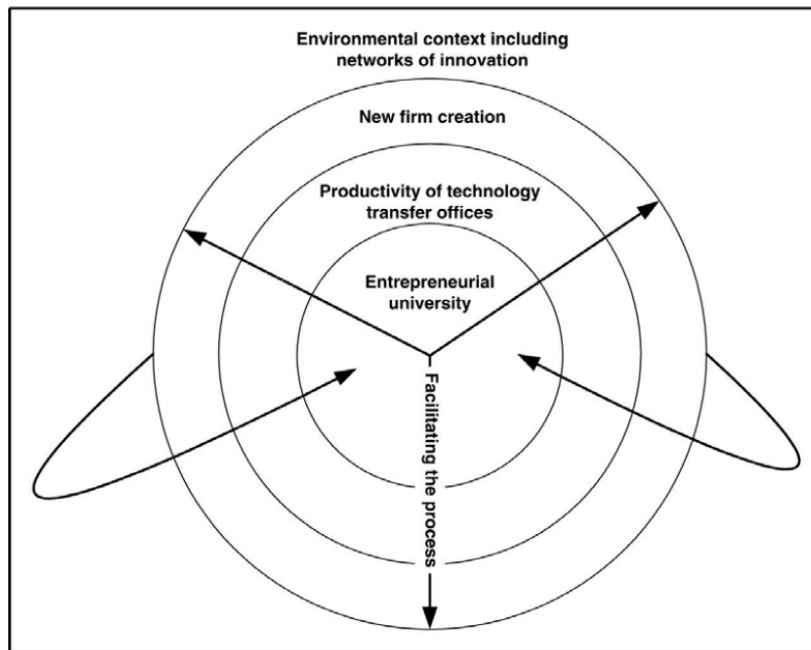
***Figure 1.5. Obstacles with human capital (Beggar, 2016)***

## **1.5 Entrepreneurship in the university ecosystem**

The university, as an entrepreneurial ecosystem, exists within and for the benefit of society. The ecosystem with open boundaries allows for the comings and goings of other external actors, depending upon social and/or societal as well as geo-cultural perspectives. Entrepreneurship, therefore, also takes place within a societal (non-corporate) context and provides some kind of societal utility. Societal entrepreneurship is integrated into the thesis due to the interest in interaction between entrepreneurs' students and the environment with which they interact. Only some members of the role-set (teaching staff) are directly tied to the university landscape through specific roles in charge of conducting the entrepreneurship programme.

Entrepreneurship at university can be understood to be the transfer of university research to society through commercialisation or utilisation activities. These activities can include technology transfer, venture creation, incubation, and regional development (Libecap, 2005, Rothaermel et al., 2007, Shane, 2004b). Thus, university business incubators are also involved in new venture creation, assisting emerging ventures through provision of market access, services, support networks and financing (Grimaldi and Grandi, 2005, McAdam and McAdam, 2006).

The entrepreneurial university represents one way of describing the university, which has evolved from a traditional teaching and research institution (Dasgupta and David, 1994, Etzkowitz, 2004, Lambert, 2003, Nelson, 2004, Stevens, 2004, among others) to a commercial actor in society. Many societal factors related to the "environmental context including networks of innovation" presented in the Rothaermel et al. (2007) conceptual framework (see Figure 1.6) and are not specifically addressed. Thus, it is important to point out some of the specific components associated with existing national regulations that impact the empirical setting from the societal level, in the context of this study.



***Figure 1.6. Rothaermel et al. (2007) Conceptual framework of university entrepreneurship***

The addition of commercial activity to the university has been explained in certain research literature through the triple helix model where university-industry-government cooperation is intended to drive regional development (Etzkowitz and Leydesdorff, 2000, Etzkowitz et al., 2000). Commercial activity has brought regulatory changes. One key example is the governmental regulation regarding ownership of intellectual property at the university.

In Algeria, almost 98% of universities are public, and their primary role is to absorb the mass of youth graduated from high school. The main purpose is to dissuade these youth from taking the path of informal employment or, worse, clandestine immigration and other illegal activities. Consequently, the main purpose of some universities proposing entrepreneurship programmes is not necessarily linked to commercial activities but is more social in its socialist perspective.

Entrepreneurial education can be understood as a common phenomenon within the university setting (Fayolle and Kyrö, 2008, Finkle and Deeds, 2001, Katz, 2003, McMullan and Long, 1987, Solomon, 2007). University-level entrepreneurial education with an emphasis towards venture creation (Menzies, 2004) has implicitly the same intent as the third mission of the university to contribute to future economic development stemming from new innovations. Combining entrepreneurial education and university entrepreneurship activities (Moroz et al.,

2006, Nelson et al., 2005, Pittaway and Cope, 2007, Siegel et al., 2005) allows for using ideas left ‘on the shelf’ by university researchers (Vestergaard, 2007), particularly in the form of venture creation and incubation. However, while it is recognised that university technology transfer and entrepreneurial education may be complementary, relatively little integration of these two areas has taken place (Nelson et al., 2005). Nelson et al. found that, based on three studies at Stanford University, the most effective integration was through soft rather than structured channels, allowing for autonomy and flexibility. This is perhaps due to the potential challenges encountered when combining academic and business perspectives and objectives, such as concerns regarding entrepreneurial activity leading to potentially conflicting roles and responsibilities of university employees (Laukkanen, 2003, Siegel et al., 2007, Tuunainen, 2005).

## **1.6 Structure of the thesis**

The present thesis is structured as follows: in Chapter One, some contextual elements that attempt to justify the need for this research are explored, presenting some symptoms of issues in the studied entrepreneurship ecosystem; Chapter Two is about literature review and what kinds of works have influenced or may have a pertinent base of extrapolation to the research’s scope, synthesising theories on the entrepreneurial teaching process and entrepreneurial skills and learning. Particular attention is given in Chapter Two to the analysis of the existing background of the entrepreneurship teaching program in Algeria, and an Algerian university case is presented and related to the overall purpose of the thesis in Chapter Three. A conclusion for Chapter Two is elaborated according to a reflection about research questions. Chapter Three covers the methodology of the research, speaking about the philosophical underpinning of the research (why this methodology and method was chosen), and the methodology of field work (what is the relationship between the chosen methodology and the field of entrepreneurship teaching). Findings will be presented in Chapter Four, followed by a discussion about the findings and how they relate to the literature review in Chapter Five. Conclusions are drawn in Chapter Five, where a reflection is undertaken as to how far the research questions were fulfilled, pointing out contribution to knowledge and professional practice. Finally, Chapter Six is a reflection on the intellectual journey as a researcher and the possible implications for future research.

## 1.7 Conclusion

Entrepreneurial environments are unpredictable, ambiguous, and require a specific approach, which is in distinct contrast to the environments we teach in. A method of entrepreneurship allows students to navigate the discipline. This method needs to represent a body of skills and techniques that help students develop a set of practices that improve their ability to think and act entrepreneurially (Neck, Greene, & Brush, 2014).

In Algeria, this previous statement of unpredictability and ambiguousness is also valid, therefore the applications of some methods engineered and conceived in other contexts, for example the FIE program, may really give an opportunity to reflect and evaluate the good practices and improve and enhance the existing methods.

The aim of this chapter is to demonstrate the need to undertake this research on entrepreneurship teaching practices in the higher education context, and then suggest some reflections on the principal criteria that impacts the effectiveness of entrepreneurship teaching and skills development for university students.

The chapter also presents an overview on the existing Algerian entrepreneurship context by providing an economic historical evolution of the country in its contemporary period. At the same time, it supports the research within the context of the country in terms of employment challenges for youth in general and for university graduates in particular. The next chapter addresses a review of the literature in relation to entrepreneurship in general and entrepreneurship teaching in particular.

This focus is linked to the reasons why this research on entrepreneurship has been conducted, concurring with Galloway's point of view: *There are our institutional reasons of course—we have to publish and we have to be active contributors to the international research community to define ourselves as 'successful' academics. And there are the intrinsic reasons—we like researching, we like discovering. There is also 'the mission'—the idea that the knowledge we create is somehow informing the communities of interest—the policy makers, the practitioners, the supporters of enterprises and entrepreneurship. The focus on the business growers and innovators therefore seems reasonably sensible when you consider the contribution we might make to this part of the sector; we are contributing knowledge that will help to support and grow our economy and that will develop wealth and make social contribution* (Galloway, 2018).

## Chapter 2. Literature review

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### 2.1 Introduction

Entrepreneurship researchers have backgrounds that range in scope from management science and economics to sociology and ethnography. Consequently, they have many different approaches to the study of businesses and those who start them, run them, and harvest or close them. In both research and teaching researchers tend to use the term 'entrepreneurship' to describe these activities. However, this entrepreneurship varies enormously, from that which disrupts and revolutionises markets, to individuals that undertake (or don't) a journey in entrepreneurship in a framed education scheme. Yet, despite all of existing knowledge and expertise, the focus of the studies remains relatively limited, with all these different perspectives focused on one type of entrepreneurship: the type governments want to encourage and support; the type with the potential to innovate, to grow and to create jobs and new sectors and strengthen industries (Galloway, 2018). Even if social entrepreneurship also becomes a subject of study, knowledge and education in the society are largely based on hegemonic, normative, and Western ideas about entrepreneurship as an activity conducted to create financial value and wealth for individuals. The research community knows this to be simplified and largely inaccurate, as it is well known that people start firms for a variety of financial, social, and personal reasons. Yet there is little research engagement with outcomes beyond those with financial and economic value-adding potential, although the social outcomes can also be substantial. Consider, for example, the potential outcomes for entrepreneurs in terms of personal and social identity, the use and development of skills, as well as the financial measures including the cost benefits of enabling economic participation. There is much to explore in entrepreneurship studies, from how to stimulate and support the potential growers, through how to support entrepreneurship as a work context for those who seek to sustain rather than grow their firms, including how this may vary by demographics. There are also some inconvenient truths in entrepreneurship, however, and this part of the story needs to be told and challenged if we are to really develop knowledge of its use to policy, practice, and social life (Galloway, 2018).

In the previous chapter, an overview of the research context is given, including how the domain of entrepreneurship is significantly related to the context in which it is studied. By acknowledging that innovative entrepreneurship is a potential driver of job creation, the



development of many research projects carried out during the last few years that are related to the perspective chosen for this study is apparent. These studies provide a basis of accumulated knowledge, and a contextual review of them revealing gaps in the knowledge is necessary in order to develop and position a productive study.

In this chapter, the empirical studies that are most relevant to this study are examined, and theoretical research perspectives on entrepreneurship and the applications of entrepreneurship teachings outlook are discussed. In the study of entrepreneurship, it is argued that the entrepreneurship teaching perspective and the enterprise creation and sustainability are closely related.

In subsequent chapters, the entrepreneurship teaching perspective, including key concepts, is explored. Finally, empirical studies of entrepreneurship using entrepreneurship-teaching perspectives are reviewed.

The readings studied here can be divided into two categories. The first cluster of literature is important for entrepreneurship because it gives access to resources. These studies have been conducted within the context of business entrepreneurship, where the underlying theory is “entrepreneurs’ characters” based on existing entrepreneurs that are already running a business, and their ability to connect with other parties that can provide financial support. However, resources are not a variable in most of these studies. The independent variable is usually the entrepreneur’s profile with its cultural (Hofstede, 2010) dimension, with the dependent variable representing entrepreneurship, often measured as entrepreneurial phases (Neck, Greene and Brush, 2014).

A second cluster of literature has been done within the context of the entrepreneurship ecosystem. These studies not only differ from the business entrepreneurship research in analysis perspective; they are also distinctive because most of them tend to explain that the ecosystem is the departure point of entrepreneurship dynamics. Many of them are based on comparative cases of different countries’ economies (Valerio, Parton & Robb. 2014). This makes it necessary to separate the discussion of business and entrepreneurship ecosystem studies (Neck, Greene, and Brush, 2014).

This chapter is, therefore, organised in the following manner. First, some entrepreneurship definitions are presented, taking into consideration both clusters mentioned in the introduction

of this chapter, exploring the entrepreneurs' profile approach on entrepreneurship that has been developed in the field of business creations. Then, the literature in relation to how the skills of entrepreneurship are taught is discussed. This gives the necessary base for understanding how to expand the teaching approach into the entrepreneurship ecosystem.

## **2.2 Entrepreneurship definitions**

This section provides various definitions of entrepreneurship in parallel to the evolution of the concept of entrepreneurship itself, and then, in the following sections, various applications of those concepts will be presented.

Nowadays, the entrepreneurship field has emerged as a phenomenon, generally attracting more and more researchers from economics, management, and the social sciences. Scholars diverge relatively in defining entrepreneurship. In this section, some definitions of what entrepreneurship is and what the other concepts involving entrepreneurship may involve are given. At the end of this section, what entrepreneurship scope is related to the research is indicated.

The distinction between entrepreneurship, enterprising, and small business can be traced back to Bjerke (2013), who makes the distinction between these three concepts. Bjerke explains that not all small businesses are necessarily entrepreneurial, and that even big businesses can be entrepreneurial. Entrepreneurship in established business firms is sometimes called intrapreneurship. From his point of view, all enterprising is not necessarily entrepreneurial—only some enterprising is.

Indeed, the concept of enterprise is used in a variety of situations with a number of different meanings. While the narrow view of enterprise (or being enterprising) is related to entrepreneurship, specifically concerning business ventures, a broader view has a more general human meaning (Bjerke, 2013). As indicated above, this concept is rather broad and related to a wide collection of different contexts. Thus, enterprise (and being enterprising) is herewith characterised as a set of an individual's abilities to take initiative, to discover and introduce new ideas, to turn these ideas into real activities, and to take responsibility for their execution. Particularly, in relation to business ventures, enterprise represents the ability to identify or create a business opportunity, and efficiently and effectively exploit this opportunity in a particular competitive business environment (Orbánová and Velichová, 2013). On the other hand, Bjerke (2013) still argues that when an entrepreneurship policy is

being implemented in the Swedish educational system, the main effect on entrepreneurship education seems to be growth in an alternative view on entrepreneurship. This is first and foremost a means for accomplishing learning through action and practice. The implementation tends to favour the entrepreneurial learning concept over the entrepreneurship concept, where entrepreneurial learning encompasses a multitude of educational practices for developing internal entrepreneurship and enterprising abilities. Priority is not given to external entrepreneurship for business venturing, where an emerging research interest from pedagogy scholars is evident. Consequently, enterprising can involve the following: education and learning on how to be an entrepreneur from a knowledgeable human being with know-how, the pursuit of an ultimate goal to launch a venture where it seems that there is not yet a consensus in the entrepreneurship research field among scholars about skills, and behaviour and attitudes that must be learnt. In parallel, entrepreneurship integrates all activities at the economic and state structural levels that stimulate the ecosystem from different perspectives, even an educational one that is not the primary focus.

Schumpeter (1934, p.74) defined entrepreneurs as individuals who come up with new combinations in the economic value chain of the society, which is one way to look at innovations. Schumpeter separated four roles in the innovation process: the inventor, who comes up with a new idea; the entrepreneur, who commercializes this new idea; the capitalist, who provides the financial resources to the entrepreneur; and the manager, who takes care of the daily routines in the company, thus realising the innovation. As mentioned, the divergence in the definition of entrepreneurship to a certain extent drove researchers to study its different scopes and functions. Davidsson (2004) outlines two distinct phenomena.

The first of these is that some individuals, not necessarily young people, instead of working for somebody else in an employment scheme, break out on their own and become self-employed. This usually means that there is some degree of innovation at the start-up and often requires innovative abilities in order to find a place in a market and sustain it. However, the meaning of innovation here may not correspond exclusively with Schumpeter's (1934) point of view that is based on "creative destruction" innovation. It may, however, match with incremental innovation (Dyer, Gregersen and Christensen, 2011), which means maintaining existing practices but gradually making improvements that may involve small changes in product assets, marketing, or other areas of the business. Boukhari (2016) suggests that the Algerian entrepreneurs' profile is similar to other countries with developed economies, and by

extension those entrepreneurs require and are evaluated by the same factors, such as support, ambition and innovation.

The second phenomenon involves a clearer renewal and development of a society, market, or organisation based on actors at a micro level taking the initiative and having the perseverance to make things happen in a new way. ‘Entrepreneurship’ here means the creation of new autonomous or ad-hoc economic activities and organisations (“independent entrepreneurship”), as well as the transformation of those economic operations that already exist (“intrapreneurship”) (Bjerke, 2013).

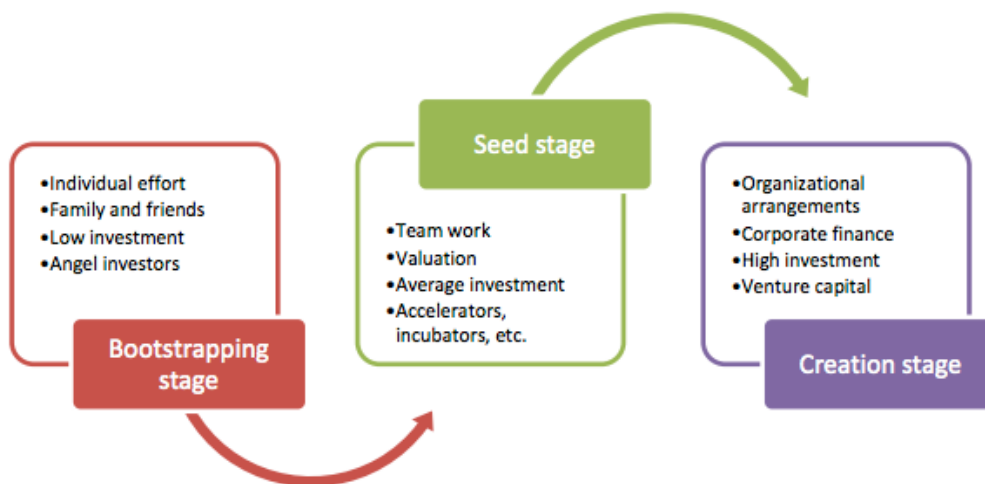
Boukhari (2009) claims that the government can influence the competitiveness of the economy of its country by encouraging the emergence of a culture of entrepreneurship, especially in schools and universities and other spaces for familiarisation of the entrepreneurship phenomenon.

It is quite evident that from the different entrepreneurship definitions’ perspectives (Schumpeter, 1934, Davidsson, 2004, Bjerke, 2013), entrepreneurship teaching represents a focal point of performing entrepreneurship activities, whether venture launching or culture or ecosystem catalysing. Consequently, universities exist within and for the benefit of society as a means to observe and construct the skills and behaviours needed by growing entrepreneurs in an entrepreneurial ecosystem.

The ecosystem with open boundaries can even be seen to allow for the comings and goings of other external actors. Soci(et)al (social and/or societal, depending on the geo-cultural perspective) entrepreneurship can be seen as taking place within a societal (non-corporate) context, providing societal utility.

This section shows the particular attention that was given to the evaluation of the venture projects’ evolution stage, especially because start-ups are diversified and complex in nature, these entities have their lifecycle. Positively, research on start-up lifecycles has been well developed in the last few years (see Salamzadeh, 2015).

Since the sequence of activities and stages might vary among different start-ups, a general perspective is presented in this case study to offer a better understanding of the lifecycle stages of an entrepreneurship project (see Figure 2.1).



***Figure 2.1. Lifecycle of a start-up (Salamzadeh, 2015)***

### *(i) Bootstrapping stage*

At this early stage, the entrepreneur initiates a set of activities to turn the idea into a profitable business. However, as work continues on the new venture idea, a team is put together, personal funds are used, and family members and friends are solicited for their investment in the idea, and a higher risk or level of uncertainty is considered. Bootstrapping, which is sometimes defined as highly creative ways of acquiring the use of resources without borrowing (Freear et al., 2002), is one of the areas of entrepreneurship research that most needs to be addressed (Ebben & Johnson, 2006). The purpose of this stage is to position the venture for growth by demonstrating product feasibility, cash management capability, team building and management, and customer acceptance (Brush et. al., 2006).

Moreover, angel investors are more likely to invest at this stage. In sum, as Harrison et al. (2004) argue: “bootstrapping is a way of life in entrepreneurial companies”. This argument reveals the reason why most of the start-up theories are borrowed from entrepreneurship theories.

### *(ii) Seed stage*

After the bootstrapping stage, the founder enters into the seed stage, which is characterised by teamwork, prototype development, entry into market, valuation of the venture, seeking for support mechanisms such as accelerators and incubators, and average investments to grow the start-up. For most start-ups the seed stage is disorganised and volatile and is construed as highly uncertain (Salamzadeh, 2015a). The seed stage is characterised by the initial capital that is used to make the product and/or do the service (Manchanda & Muralidharan, 2014). Thus, the founder seeks support mechanisms such as accelerators, incubators, small business

development centres, and hatcheries to accelerate the process. A great number of start-ups fail in this stage since they cannot find support mechanisms, and, in the best case, they turn into a low-profit company with a low possibility of success. On the other hand, the ones that succeed in receiving support have a higher chance of becoming profitable companies. It goes without saying that valuation is normally done at the end of this stage.

### *(iii) Creation stage*

The creation stage occurs when the company sells its products, enters the market, and hires its first employees (Salamzadeh, 2015). Some scholars believe that entrepreneurship stops when the creation stage has ended (Ogorelc, 1999). This supports the argument that most of the start-up theories are borrowed from entrepreneurship theories, and not management and organisation theories. At the end of this stage, an organisation/firm/company is formed, and corporate finance is considered as the main choice for financing the enterprise. Venture capital funding may facilitate the creation stage.

The lifecycle includes three main stages: the bootstrapping stage, seed stage, and creation stage (Salamzadeh, 2015). Among the three main streams of research on start-ups, entrepreneurship theories are the most dominant. Salamzadeh's (2015) theory considered challenges that start-ups might face. For example, researchers might elaborate each of the mentioned stages and study the challenges in different areas. Also, scholars might compare the existing theories of management, organisation, and entrepreneurship in order to develop a comprehensive theory of start-ups (Salamzadeh, 2015).

A study conducted by McGee et al. (2009) demonstrated the multi-dimensional nature of the entrepreneurial self-efficacy (ESE) measure by testing it within a four-phase venture-creation framework. This framework builds in the direction of new venture creation being conceptualised in terms of broad stages, or as entrepreneurial tasks within a venture creation model (Stevenson & Jarillo, 1990; Timmons, 2002). These stages are labelled: (1) searching, (2) planning, (3) marshalling, and (4) implementing (Kickul et al., 2009; Mueller & Goic, 2003; McGee et al., 2009).

First, the searching phase involves opportunity identification and development. Lumpkin, Hills and Shrader (2004) argue that the creation of a successful business follows successful opportunity development, and also involves the entrepreneur's creative work.

The second is the planning phase, which consists of activities by which the entrepreneur converts the idea into a feasible business plan. Here the idea or business concept is evaluated in terms of various market and profitability criteria.

Third is the marshalling phase that involves assembling resources to bring the venture into existence. To bring the business into existence, the entrepreneur gathers (marshals) necessary

resources such as capital, labour, customers, and suppliers, without all of which the venture cannot exist or be sustained (Urban, 2012).

The fourth phase is the implementing phase during which the entrepreneur is required to grow the business and ensure the sustainability of the venture. To these ends, the successful entrepreneur applies management skills and principles, particularly in implementing financial and people management.

Recognising the importance of effectiveness in competency acquisition is required continuously throughout the venture creation phases to ensure competitiveness. To continually improve multiple sub-skills required to manage ever-changing venture phases requires competent functioning, which is based on both skills and self-beliefs of efficacy. Urban's (2012) study makes an original contribution by understanding how ESE plays an important role in determining the essential skill set needed throughout the four phases of the venture creation phases, which leads to enhanced venture competitiveness.

Providing various definitions of entrepreneurship in clarifying venture creations by explaining their lifecycle and stages is very important because it allows to establish a theoretical background for our questionnaire method that tracks the level of development of ventures of the studied students. It appears more pertinent to use Urban's model because it focuses on student skills rather than focusing on the process of venture creation. The coming section presents successful applications of entrepreneurship in Western universities.

## **2.3 Entrepreneurial practice in the university sector**

This section presents an overview of entrepreneurship practice in the university sector setting, and this will be followed by a specific discussion about the current situation of entrepreneurship teaching in Algerian universities.

While university entrepreneurship holds a significant part of the broad entrepreneurial activity taking place at or connected with the university, there are some ranges of entrepreneurial activity conducted by individuals at the university which have, to a greater or lesser degree, been discussed in independently established branches of entrepreneurship research. Louis et al. (1989) provides an overview of entrepreneurial activity common in the university setting including academic (Glassman et al., 2003, Shane, 2004a), research (Kurek et al., 2007) and institutional (DiMaggio, 1988) entrepreneurship.

Although academic, research, and institutional entrepreneurs are not the prime objects of this study, they represent other entrepreneurial actors at the university that have the potential to

both impact the entrepreneurial skills and behaviours of the entrepreneurship students, which can be influenced by systemic factors shaping their own behaviour and their ability to retain the needed skills, as shown through some empirical materials of the FIE studied program (see Appendix N°2).

Kenney and Goe (2004) found that sub-cultures supportive of entrepreneurial activity could counter the disincentives of a university environment, which can be ambivalent to entrepreneurial development. These ‘other’ entrepreneurs may take on responsibilities as mentors and role models in the venture team role-sets of the entrepreneurship students, and impact the development of their skills as they engage in the creation of new ventures. There is limited research regarding the team aspect of entrepreneurship, though with recent work by Ensley et al., 1999 and Ensley et al., 2002, it is generally recognised that there is a strong team component that contributes to entrepreneurship and venture creation (Davidsson and Wiklund, 2001).

The abstract field of entrepreneurship research has developed to the point where international institutions like the SAHWA project financed by European Union Commission (2014) and the World Bank have been found to report on entrepreneurship (2016) promoting research on new and high-growth firms. The need for renewal and development of society, market, and global economies has produced increasingly systematic and interconnected understanding, in addition to a growing number of knowledge producers, information users and practitioners. These share core concepts, principles, and research methods, with a handful of highly cited scholars emerging as thought leaders within research subfields (Mueller et al., 2006).

Although the entrepreneurship research field applications are wide, themes are found in diverse academic journals where articles about entrepreneurship are accepted and published, including the *Journal of Business Venturing*, *Entrepreneurship Theory & Practice*, the *International Small Business Journal*, the *Journal of Small Business Management*, the *Strategic Entrepreneurship Journal*, *Small Business Economics*, *Entrepreneurship & Regional Development* and the *International Entrepreneurship and Management Journal* (Kuckertz and Prochotta, 2018). The field is increasingly formalised and anchored in a set of intellectual bases. Using an institutional theory perspective and drawing upon some experience in the field, Aldrich (2013) explores six forces creating the institutional infrastructure. First, social networking mechanisms have created a social structure facilitating connections between researchers. Second, publication opportunities have increased



dramatically. Third, training and mentoring have moved to a collective rather than individual apprenticeship model, as found in universities and even in other programmes sponsored by institutions. Fourth, major foundations, and many other smaller funding sources have changed the scale and scope of entrepreneurship research. Fifth, new mechanisms have emerged that recognise and reward individual scholarship, reinforcing the identity of entrepreneurship research as a field and attracting new scholars into it. Sixth, globalising forces have affected these trends. Aldrich concludes with some thoughts about the consequences of these developments with regard to the giving of practical and timely advice to entrepreneurs, the effects of American hegemony on choices of research topics and methods, and the possible loss of theoretical eclecticism (Aldrich 2013).

Entrepreneurship as a social and economic phenomenon, has, therefore, over these past 30 years, become a field of inquiry, and has gained significant interest from policy makers, ‘practitioners’, and in society more generally (Berglund, Johannisson, and Schwartz 2012). During this period, entrepreneurship research has grown remarkably and is, today, a well-established, scholarly field with its own endowed chairs, faculty positions, academic associations, and scientific journals and conferences (Aldrich 2012; Fayolle and Riot 2016). In this respect, entrepreneurship research has become more and more institutionalised (Fligstein 1997; Lamont 2012; Scott 2001) and, as such, entrepreneurship research has received greater academic legitimacy.

However, we can also question if this institutionalisation is such a good thing when it comes to producing critical, innovative, contextualised, and complex research or when considered from the point of view of non-academic entrepreneurship stakeholders and society in general (Tedmanson et al., 2012).

Yet, entrepreneurship is also a multidisciplinary field, having attracted researchers in, for example, economics, sociology, psychology, history, philosophy and management (Aldrich 2016; Gartner 2004). In line with these multidisciplinary academic interests and to address social needs and problems, entrepreneurship has also unfolded in new societal areas. This is discernible by the increasing (and sometimes questionable) use of such prefixes as “social”, “green”, and “sustainable”, or suffixes such as entrepreneurial “learning”, “culture”, “intention”, “orientation”, and “management”.

The use of “entrepreneurial” is thus diffused, but does that mean that entrepreneurial practices also are diffused in a better way? Is entrepreneurship becoming institutionalised in a society

that cherishes and strives for diversity when it comes to the entrepreneurial initiatives? Is entrepreneurship scholarship calcifying and “thereby beset by an increasing number of assumptions, even myths” (Rehn et al. 2013), while society acts entrepreneurially in different ways with different meanings? Assumptions and myths concern both the focus, i.e., the main research objects/topics, and the ways (theories, methods) researchers should study entrepreneurship as a historical, cultural, social, and economic phenomena (Berglund and Johansson 2007). Finally, have society’s ideas about entrepreneurship also become institutionalised in ways that have made its conception and practice hollow? (Fayolle et al, 2016).

These questions highlight the fact that the institutionalisation of entrepreneurship as a field of research and a domain of practices has important consequences at different levels. Discussions about the institutionalisation of entrepreneurship, where researchers are invited to attend workshops and research projects that clearly focus on the topic (i.e., Fayolle and Riot 2016; Landstrom et al. 2016), is something relatively new.

Fayolle and his colleagues identify three main challenges/issues that should be taken into consideration in the institutionalisation of entrepreneurship research: (1) recognising the complexity of the phenomenon under study; (2) producing interesting, relevant, and useful research results for all stakeholders; and (3) developing a critical posture in research. Following the discussion of these challenges/issues, the five contributions to the special issue, which, in different ways, problematise and challenge mainstream research and approaches, are introduced. These articles use “dissensus discourses” (Alvesson and Deetz 2000), apply critical ideological and paradigmatic stances, and in some cases underline the importance of contextual factors.

Entrepreneurial activity at the university is not limited to teaching entrepreneurship students and those immediately associated with it, such as entrepreneurial team members. The teaching of entrepreneurship students is associated with a particular social network, called a role-set (Aldrich and Zimmer, 1986, Carsrud and Johnson, 1989). The role-set is a set of individuals that impacts the social context of entrepreneurial behaviour of the entrepreneur (in this case entrepreneurship students), as they contribute to defining the social status of the ‘role’ of potential future entrepreneurs. The role-set operates in various organisational configurations, sometimes with local norms and routines separate or even autonomous to those of the entrepreneurship students. They may be employed within or outside the university, or may

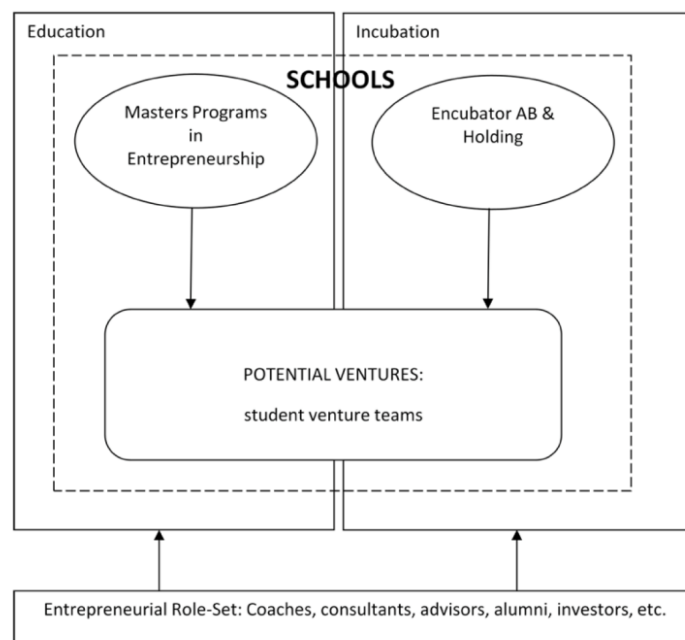
have partial employments, introducing multiple role responsibilities. In this thesis, Carsrud and Johnson (1989) define the role-set to not only include the family members, financiers, partners, and distributors but also other advisors and coaches, such as faculty, alumni, and board members.

As an example of role-set operating, Middleton (2010) conducted a study about developing entrepreneurial behaviour in Chalmers University of Technology in Gothenburg, Sweden in *The Venture Creation Subunit* (VCS), the equivalent of our FIE program in Algeria mentioned in Chapter One. The scheme of teaching entrepreneurship is quite similar to the context of our study. The setting consists of a combined bachelor's/master's degree in entrepreneurial education and an incubator, operating at a technical university, and is considered as an environment in which individuals engage in a process of opportunity-based high-growth potential venture creation.

A community of stakeholders, both formally and informally linked to the subunit, described as a role-set, interact with growing entrepreneurs as they collectively create new ventures. Insider access to the empirical setting allows for real-time in-depth study, giving deep understanding to interactions facilitating the development of both the new venture and the growing entrepreneurs. Application and admissions require that individuals communicate their motivation towards engaging in and learning about venture creation, which is considered to signify intention. Upon acceptance, individuals go through a period of training and development before entering the one-year incubation period. Incubation period entry is again considered to signify intention, this time coupled with signing a contractual agreement (Middleton 2010).

In the Chalmers VCS, there was a need for certain structural designs that establish some boundaries between academic and business activities, due to legal requirements. Academic activities are organised under master's programmes while business activities are organised under the incubator (presented as Education and Incubation, Figure 2.2). However, actors working and associated with the academic and business activities are co-located at the Chalmers VCS within which they also conduct combined academic and business activities. Thus, for the most part, both separate and combined activities of the Chalmers VCS are conceptually organised under two entities labelled as schools. Each school has a specific area of concentration: one builds technology-based ventures, ranging from nanotechnology to applied materials, covering the entire main engineering sciences and information

technologies, called Chalmers School of Entrepreneurship (CSE), while the other builds bio- and life science-based ventures, called Gothenburg International Bioscience Business School (GIBBS).



***Figure 2.2. The integrated education and incubation environment VCS Chalmers University of Technology, Gothenburg***

Chalmers, the university which houses the core empirical setting and its various subsystems and subunits, has been described as an entrepreneurial university (Clark, 1998). As early as the 1980s, researchers were investigating the spinout company rates at Chalmers in comparison to rates at Stanford University and Massachusetts Institute of Technology, finding that the rates were comparable, though Chalmers' companies were smaller and newer (McQueen and Wallmark, 1982). These same researchers then specifically focused on faculty performance in relation to innovation activities, with evidence supporting an increasing rate of entrepreneurial activity in the form of spinout companies, as correlated to patenting activity (McQueen and Wallmark, 1984). Both studies recognised that entrepreneurial activity was taking place at the subunit levels of the university. As these activities evolved at the university, so did the research policy of Chalmers, which was oriented towards transforming into an entrepreneurial actor. This, therefore, drew attention to the importance of interaction between the national innovation policy, at the societal level, and the organisational autonomy and flexibility at the subunit and other operational levels (Jacob et al., 2003). The Jacob et al.

study showed that both infrastructural and cultural changes were necessary to achieve creation of an entrepreneurial university at Chalmers (Middleton 2010).

The views of Aldrich and Fayolle clearly supported by the empirical example of VCS reinforce the approach taken in this thesis. Both academic research and institutional research gather in their principles the importance of teaching and the contextual factors, thus reinforcing the basis of the methodology used in this thesis, which will be discussed later. VCS at Chalmers University provides an interesting basis to explore more efficient methods of teaching entrepreneurship in higher education ecosystems. Some of these proven teaching practices will be seen in detail in the coming section. Indeed, seminars on entrepreneurship institutionalisation are seen more and more in Algerian universities, still in collaboration with Western universities, and including initiatives like the FIE project from 2011 to date. However, a concrete institutionalisation of entrepreneurship research and teaching remains a big challenge in Algeria, as demonstrated in the coming section.

## **2.4 The current situation of entrepreneurship teaching in Algerian universities**

This section is about setting the context of what is essentially being developed in entrepreneurship teaching currently in Algerian universities and is followed by what is happening in entrepreneurship teaching now in some Western universities.

In the Algerian university perspective, among the roles assigned to the modern Algerian university are the training of managers and competent entrepreneurs who participate in the creation of employment and wealth necessary for the nation (Ghiat, 2019). Algerian universities have adopted the application of the LMD (bachelor's, master's, and doctorate) system, which promotes the mobility and employability of students. Socio-cultural and economic environments have proven to be constraints in achieving these goals. Among these constraints is a binding organisational culture within the university—again, the professional bureaucracy (Styhre and Lind, 2009). The success of the application of the LMD can be facilitated by a healthy tradition of work, respect for time, and seriousness (Ghiat, 2019). This is not always the case in Algerian universities, where no semester takes place without the occurrence of strikes initiated by students who generally demand lower academic standards in order to pass from one year to another. Unfortunately, they are often successful with the university administration (Ghiat, 2019).

Centralised management within the Ministry of Higher Education and Scientific Research influences the Algerian university, by its legal status. It is obliged to respect the directives coming from the hierarchy, which are often decided by political structures. The socio-economic environment and the weakness of the industrial as well as entrepreneurial framework that should allow students to gain practical experience in companies also influence it.

In order to improve the training of students in entrepreneurship, the introduction of more training programs related thereto, and the training of teachers on practices that tend to develop the scientific, managerial skills, and psychological qualities, are necessary (Ghiat, 2019). The Algerian university should also improve its organisational structure and reinforce its efficiency culture in order to have more latitude in its management. It must also be autonomous in relation to the political bodies in order to be able to make the appropriate decisions necessary for its proper functioning and for training in entrepreneurship (Ghiat, 2019).

University training practices facilitate the employability of students and provide them with the ability to create their own businesses. Therefore, according to Koubaa and Sahibeddine, *"It seems important to work to make the university system more efficient in terms of raising awareness, training and supporting young people with project ideas."* The focus must be on attitudes towards business creation, entrepreneurial skills, and the intention of students to make their behaviour more efficient (Koubaa and Sahibeddine, 2012, p.55).

Despite the importance given by the State to the operation of encouraging young people (see Chapter One), particularly in academics, it is noted that the Algerian university has not kept pace with this strategy. As can be seen in the Algerian university, there are few training programmes in entrepreneurship. This is the case in this study for EHEC with FIE, where there were not even teaching units (modules) aimed at educating students and providing them with the skills necessary for the creation of their businesses. This inhibits the entrepreneurial intention of the Algerian student and makes it nearly impossible, in most cases, and in the majority of the scientific disciplines, for a student to set up his or her own business and manage it, although the State policy encourages it. (Ghiat, 2019).

Even the announcement of the Ministry of Higher Education and Scientific Research in 2015 to generalise entrepreneurship teaching in all universities, this reality of field demonstrated that few universities succeeded in launching entrepreneurship programs, with a clear lack in

qualified academic and role-set support. Some diagnoses were conducted by ILO (International Labour Organization) in 2017. In addition to the lack of efficiency of those entrepreneurship programmes in terms of content and role-sets, the results of some university cases also showed the deficiency in infrastructure dedicated to entrepreneurship students. In response to this field situation, in the frame of a project called TAWDIF (employability), financed by the United Kingdom, ILO launched the *Maisons de l'entrepreneuriat*, which are entrepreneurship houses in universities. Despite this, the results still showed the incapacity of the university to set up role-sets capable of creating a dynamic of collaboration and student support within those structures.

The difficulty in accurately tracking the number of students who have studied in entrepreneurship programmes and graduated remains a huge challenge because of the process of archiving student files, which is done at the majority of universities in the form of paper files (ILO, 2019).

The cultural differences between Algeria and the Western world in general, in addition to the close relationship between the wide ecosystems of entrepreneurship, imposes to understand how the entrepreneurship education in general has evolved, in order to reduce the gap between the knowledge background generated by the Western world and the local Algerian context. The coming section addresses the evolution of entrepreneurship education and provides an overview of entrepreneurship teaching in some universities worldwide.

## **2.5 Entrepreneurship teaching in universities**

This section is about setting the context of what is happening in entrepreneurship teaching now in universities, and this will be followed by an extended discussion as to how entrepreneurship education has developed to its present position.

Since the late 1980s, entrepreneurship education has exploded across the globe. All AACSB (Association to Advance Collegiate Schools of Business) accredited schools are teaching entrepreneurship at some level (Katz, 2003). This statement is also valid in Algeria where, since 2017, 80 percent of public universities have offered courses in entrepreneurship for finishing students. In the United States alone, there are 2200 courses being offered at 1600 colleges and universities (Katz, 2003). In the United Kingdom, 126 institutions offer 409 courses in entrepreneurship (Hotcourseabroad, 2017). In China and Malaysia, the subject

is high priority and is the subject of regular official communications (Malaysian Ministry of Higher Education, 2017).

The global objective is to have graduating college students with the ability to think and act entrepreneurially. Entrepreneurship is a catalyst for the achievement of economic transformation of countries from middle- to high-income economies. Entrepreneurship education is exploding, and new approaches are needed not only to keep up with the demand, but also to keep up with the changing nature of entrepreneurship education. In the book *Teaching Entrepreneurship, a Practice-based Approach* (Neck, Greene, and Brush, 2014), the authors advocate that entrepreneurship is a method composed of a portfolio of practices, and these practices can be applied in any course, on any campus, and with any student.

The university encompasses multiple levels of activity and interacting components. While the university can be understood as having one fundamental purpose—to provide benefit to society, this quickly dissipates into multiple missions and numerous operational objectives across the various organisational and operational levels of the university (Fayolle and Kyrö, 2008). Institutional structures of norms, established practices, and rules are intended to regulate interactivity (Edquist, 2006). A dominant view of university organisation is captured in the organisational archetype of the “professional bureaucracy” (Styhre and Lind, 2009). This organisational form implies individual autonomy based upon standardisation of inputs in terms of skills, exams and other internalised behavioural patterns. It hires duly trained specialists with internalised norms and professionals in some cases.

University-level entrepreneurial education with an emphasis towards venture creation (Menzies, 2004) has implicitly the same intent to contribute to future economic development as indicated by new innovations. Combining entrepreneurial education and university entrepreneurship activities (Moroz et al., 2006, Nelson et al., 2005, Pittaway and Cope, 2007, Siegel et al., 2005), allows for using ideas left “on the shelf” by university researchers (Vestergaard, 2007), particularly in the form of venture creation and incubation.

Entrepreneurship education has significantly changed in at least two decades, with increased importance and potential impacts of entrepreneurship as a potent economic force (Kuratko, 2005). University educators’ function in the world cannot be underestimated. Jeff Timmons said that entrepreneurship is “not just about new company, capital, and job formation, nor innovation, nor creativity, nor breakthroughs. It is also about fostering an ingenious human spirit and improving humankind”.



Business education in general has become a kind of commodity (Trank and Rynes, 2003; Mintzberg, 2004; Bennis and O'Toole, 2005; Datar, Garvin, and Cullen, 2010). Entrepreneurship education is not without its share of criticism, given the deficiency of research on its impact (Kuratko, 2005).

Entrepreneurship's academic legitimacy continues to grow thanks to scholars' response to calls to action with respect to research domains and important questions (Brush et al, 2003; Kuratko, 2005). As an example, at Babson College, the number of abstracts submitted to the Babson College entrepreneurship research conference each year exceeds 750.

The "Can entrepreneurship be taught?" debate is a question of the past, even though this continues to be a favourite question posed by popular journalists. Legendary educator Peter Drucker (1985) said that "entrepreneurship is not magic, it is not mysterious and it has nothing to do with genes. It is a discipline. And, like any discipline, it can be learned."

We can argue that this kind of institutionalisation of entrepreneurship research and teaching is undeniably a good thing for the members of the research community, as it implies the legitimisation of particular research topics and research practices, the emergence of norms for developing and publishing this research and, finally, the creation of structures that provide employment opportunities and a conducive environment for pursuing research (Riot and Fayolle 2016).

The coming section presents how entrepreneurship has developed in parallel with the diverse research in entrepreneurship.

## **2.6 The evolution of entrepreneurship education**

This section is an extensive discussion as to how entrepreneurship education has developed to its present position, and this will be followed by a demonstration of entrepreneurship education theory and practice as a method.

In the 1970s, "connotations of the term 'entrepreneur' began to shift from notions of insatiability, exploitation, selfishness, and disloyalty to creativity, job creation, profitability, innovativeness, and generosity" (Vesper and Gartner, 1997, P.406). Entrepreneurs began to be recognised not only as a driving force of the economy, but also as positive and necessary contributing members of the community and society. Nowadays, according to *Global Entrepreneurship Monitor*, high status for being an entrepreneur is perceived among 72% of

entrepreneurs practicing in 69 economies, and 68% believe entrepreneurship is a good career choice (Xavier et al, 2012).

Early research efforts focused on the traits of entrepreneurs. Researchers attempted to identify a certain set of characteristics that differentiated entrepreneurs from non-entrepreneurs. Brockhaus and Horwitz (1986) reviewed that trait literature and concluded that there are four major personality traits of entrepreneurs: need achievement, internal locus of control, high-risk-taking propensity, and tolerance for ambiguity. Up until now, however, there has been little consensus in the trait literature or further scientific evidence as to whether the four traits are due to nature or nurture.

After the *Carnegie Commission Studies* "signalled a crisis situation" (Rowley, Lujan, Dolence 1998; Wheeler, 1998), specific shortcomings were highlighted, such as lacking relevance to the topics under research, overly quantitative course content, and a lack of preparation for entrepreneurial careers. While this led to the emergence of entrepreneurial tracks in business schools, Harrison (2006) notes overall programmes remained structurally the same as before. The genesis of the current entrepreneurial business education emerged at the gate of the ratings system for business schools, which was developed in the late 1980s by various media. While originally changes were superficial and focused "primarily on product tinkering, packaging, and marketing", a 1988 report on the status of business education noted a lack of coordination between the sector and businesses, and an ignorance of the value of lifelong learning in the business world (Porter and McKibbin, 1988).

Cheit (1985) explored the business educator's dilemma further in his discussion of the two models of business education. The academic model, primarily concerned with scholarship and maintaining business education's hard-won respectability within the academy, lies in contrast to the professional model, where business education both responds to and supports the needs of the business community.

Miner (1996) proposed four psychological personality patterns of entrepreneurs: personal advisors, empathetic super-salespeople, real managers, and expert idea generators. In response to the traits approach, Gartner (1988) argued for a behavioural approach, arguing that entrepreneurship is ultimately about the creation of organisations (new venture creation), where many influences interact in the emergence process.

Research calls to move away from traits to behaviours did ultimately move entrepreneurship education away from the focus on one type of individual to a view of entrepreneurship as a process (Bygrave and Hofer, 1991). As the process approach made its way into entrepreneurship classrooms, entrepreneurship became a linear activity of identifying an opportunity, developing the concept by understanding resource requirements, acquiring resources developing a business plan, implementing the plan, and managing the venture and the exit (Morris, 1998). Process topics include opportunity evaluation, business planning, marketing planning, resource acquisition, and managing the business and exit (Neck, Greene, and Brush, 2014).

Honig (2004) outlines the business plan as probably having its historical genesis in the long-term planning used to turn around large firms (Honig, 2004). He quotes Drucker who, in 1959, attempted to define long-range planning as “the organized process of making entrepreneurial decisions” (Drucker, 1959; Honig, 2004). The business plan in the classroom context is defined as “a written document that describes the current state and the presupposed future of an organization” (Honig, 2004). Most consist of 20- to 40-plus-page documents that *outline a proposed new product or service; the organizational and financial strategies to be employed; marketing, production, and management activities; and an examination of the competitive and environmental constraints and resources* (Honig, 2004).

The business plans involve group work, and the integration of material across a broad range of business school disciplines is expected in the presentation of material. "Business planning is so legitimized" notes Honig, "that the moment someone publicly announces their intention to start their own business, friends, family, bankers, and investors begin asking for their business plan" (Honig, 2004). Honig suggests the business plan may be "more deeply rooted in ritual than in efficiency" (Honig, 2004; Meyer and Rowan, 1977) and that, unlike entrepreneurship, it "focuses on ideas as opposed to actions" (Honig, 2004). Indeed, the link between entrepreneurship and a business plan is strongly present socially in Algeria, and it was mentioned a lot in FIE project evaluations. The first question heard from the other jury members was “did you make a business plan?” It seems that a structured and well-furnished business plan guarantees the success of an entrepreneurial learning experience, before speaking about a venture creation.

In opposition to this idea of “the business plan is entrepreneurship”, which by definition means working on something that may happen or not in the future, Harvard Business School

(Jennings, 1996) has since assumed a major role in the teaching of strategic management. The advantages of the case method have been described (Chang and Jennings, 2003) as illustrating particular points, issues, or managerial principles. They provide managers with a neutral situation in which they are free to explore problems (because they are not their own), relating theory to practice, confronting the complexities of specific situations, developing analysis and synthesis, developing self-analysis, attitudes, confidence, and responsibility, developing interpersonal skills, communication and listening, and developing judgment and wisdom and the capacity to enliven teaching. The method may gain the students' intellectual and emotional involvement, assist the long-term retention of understanding, and bring realism into instructional settings (Dooley and Skinner, 1977).

The entrepreneurship-as-process approach was profoundly influenced by the propagation of strategy scholars studying the field, and a debate between strategic management and entrepreneurship scholars arose (Shane and Venkataraman, 2000; Hitt et al., 2001a, 2001b; Zahra and Dess, 2001; Meyer et al., 2002). Shane and Venkataraman's (2000) defined entrepreneurship as: "The identification, evaluation, and exploitation of opportunities", and this definition has become the most used and cited definition in the field (Aldrich and Cliff, 2003).

Academics began studying entrepreneurship and individual entrepreneurs from a cognition perspective. Rather than differentiating entrepreneurs based on traits, cognition researchers were detecting patterns in how entrepreneurs think and began hypothesising that specific ways of thinking were sources of competitive advantage and individual variation (Mitchell et al., (2000), (2002)). Entrepreneurial cognition is defined as "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth" (Mitchell et al., 2002, p.97).

Another branch of cognition-based research emerged (Krueger, 2007) that addressed hurdles to entrepreneurship and the part of entrepreneurship that related to the starting point for persons wishing to undertake entrepreneurial activities. The missing perspective at this point was "consideration of origin of initial resource strengths, and how they contribute to, or determine, value-creating activities" (Brush et al., 2001).

The question was no longer "if an individual can be an entrepreneur" but rather "how can an individual become entrepreneurial, create opportunities, and act on them." Sarasvathy (2001,

2003, 2008), a student of Nobel Laureate Herbert Simon, introduced the field to a controversial new effectuation theory.

Sarasvathy's dissertation research incorporated think-aloud, verbal protocols with 45 expert entrepreneurs. The experimental methodology required participants to "think aloud" as they made decisions and solved a set of ten typical problems that occur in start-ups (Sarasvathy, 2008, p.23). Her resulting theory of effectuation emerged in contrast to its inverse, causation.

*"Causal models begin with an effect to be created ... In addition to altering conventional relationships between means and ends and between prediction and control, effectuation rearranges many other traditional relationships such as those between organism and environment ... subjective and objective, individual and social, and so on. In particular, it makes these relationships a matter of design rather than one of decision (Sarasvathy, 2008, p.16)".*

Understanding how entrepreneurs view the world and learn, Sarasvathy concluded that the entrepreneurial mind-set had become important. Sarasvathy (2008) empirically discovered that effectual entrepreneurs see the world as open to a host of different possibilities, fabricate as well as recognise new opportunities, make rather than find markets, accept and leverage failure, and interact with a variety of stakeholders—all for the purpose of creating the future rather than trying to predict the future (Schlesinger et al., 2012).

The discovery of patterns of how entrepreneurs think (Sarasvathy, 2008) combined with additional research from Babson (Costello et al, 2011; Greenberg et al., 2011; Neck and Greene, 2011; Noyes and Brush, 2012; Schlesinger et al., 2012) opened the reflection about the possibility that entrepreneurship can no longer be taught as a process but rather must be taught as a method (Venkataraman et al., 2012). The method of entrepreneurship requires the development of a set of practices. These practices can help students think more entrepreneurially, which in turn can develop students who can act more entrepreneurially.

Theory plays a stronger role in entrepreneurship education than ever before (Neck, Greene, and Brush, 2014). Theories related to entrepreneurial cognition can be considered as the departure point for establishing the need for entrepreneurship as a method. The practices that constitute the method are imbedded in theory from a multitude of disciplines, as shown by the history of evolution of entrepreneurship research and presented in the next two sections.

## **2.7 Entrepreneurship education theory and practice as a method**

Confucius, the Chinese philosopher, said, “I hear and I forget. I see and I remember. I do and I understand”. Aristotle, the Greek philosopher, stressed the importance of learning by doing. Although this way of thinking still has significant influence on our traditional model of higher education, the path was not as straightforward as sometimes reported. While the dominance of the importance of theory is strongly supported by the early philosophers, the critical importance of practice has emerged more strongly over the last half-century, largely driven by the work of Pierre Bourdieu, who argues for the necessity of producing a scientific understanding of the practical mode of knowledge (Bourdieu, 1980).

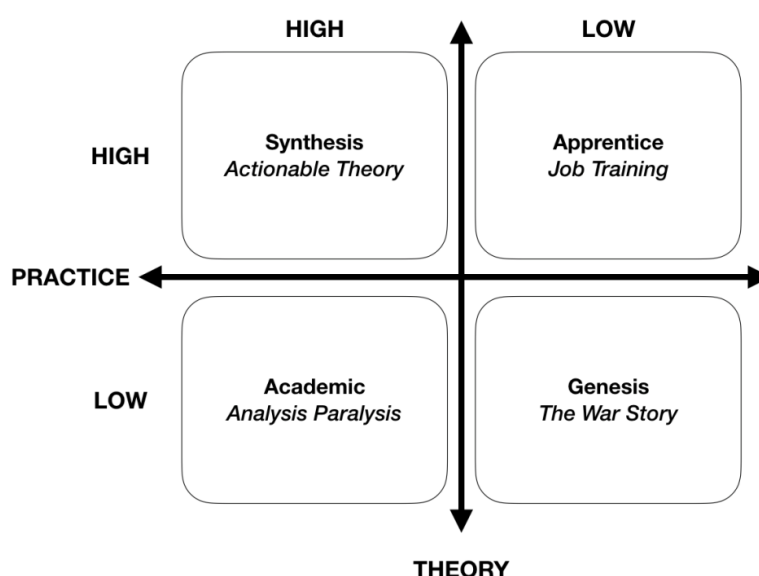
There is a persistent dilemma in entrepreneurship education about the role of theory and the role of practice in the entrepreneurship curriculum. The confrontation for influence and position between theory and practice is one that has been often debated in teaching discussions and publications. Indeed, according to Wren (2007), “the trend in our pedagogy has been more directed toward the exercise of theory and analysis than toward training our students in thinking, analysing, and application skills” (p.490). On the other hand, doing entrepreneurship does not ignore theory. On the contrary, effective doing of entrepreneurship requires a set of practices, and these practices are solidly built on theory. The students, however, do not see theory—it is invisible and not perceived in the practice. It is called “actionable theory” (Neck and Green, 2011; Corbett and Katz, 2012).

The limits of the field can be considered to be, on one side, the theory-based faculty member, imaginably with no concrete entrepreneurship experience, and guided by a conviction and duty to transmit frameworks with a belief that they will guide practice, for example in dealing with the motivation of collaborators on a daily basis or dealing with urgent matters like market-access efficiency. On the other hand, even though the practitioner benefits from its factual achievements, he is characterised by a low degree of a predictive configuration of outputs or repeatability of results, as he is intuition and experience driven. The matrix in Figure 2.3 is a useful guide to considering the theoretical-based options for teaching entrepreneurship.

Entrepreneurship education was born at man’s origins. In the beginning, there was no research, no theory, and, therefore, very few options for teaching entrepreneurship except by hearing war stories. There is a limit to learning from war stories and little practice is

involved—this is the same, to some extent, for case studies or the so-called “dead cases” in action learning.

The apprentice cell represents training of specific tasks. It is a vocational perspective where skill development takes precedence over critical thinking and understanding and developing theory is not important. The academic cell supports theory but at the expense of action (e.g., the business plan), while the synthesis cell provides the opportunity for informed application. It is in the synthesis cell where invisible theory meets practice, where the practice-based approach for teaching entrepreneurship resides; as Kurt Lewin said, “There is nothing so practical as a good theory”.



**Figure 2.3. Theory-practice matrixes (Neck and Greene, 2011)**

Process assumes known inputs and known outputs as a manufacturing process. A process is predictable. Can we really expect entrepreneurship to be such a predictable process? Is entrepreneurship actually predictable? As previously addressed, educators have traditionally accepted the process as being dominated by a linear, staged approach to new venture creation: identify an opportunity, develop the concept, determine resource requirements, acquire resources, develop a business plan, implement the plan, manage the venture and exit (Morris, 1998).

The role of entrepreneurship educators is to unleash the entrepreneurial spirit of students, cultivate a mind-set of practice, and build an environment in which practice can occur (Neck,

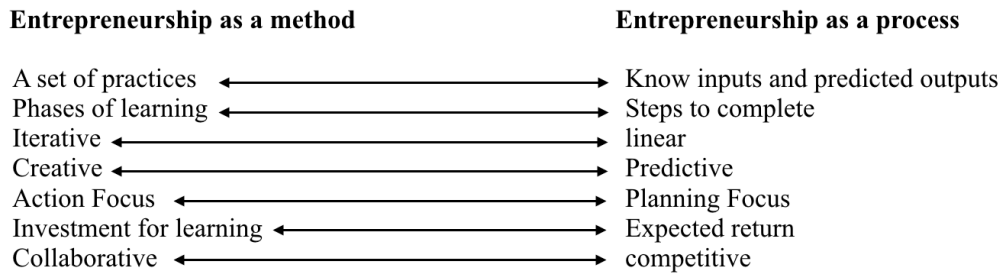
Greene, and Brush, 2014). Consequently, entrepreneurship students can lead more entrepreneurial lives because of their discovered bias for action, appreciation for learning through action, and comfort with ambiguity.

Entrepreneurial environments are ambiguous, unpredictable, and variable, and require a specific mind-set, which is in stark contrast to the present teaching environments. A method of entrepreneurship allows students to navigate the discipline. A method represents a body of skills or techniques that help students develop a set of practices that implore them to think and act more entrepreneurially: *“We need to teach methods that stand the test of dramatic changes in content and context”* (Neck and Greene, 2011, P.62). Malek Bennabi (1954), an Algerian culture change specialist, who is referred to as the contemporary Ibn Khaldoun, also mentioned Neck and Green. He said about culture change: *“It is not about teaching people words and slogans, but it is about teaching them methods and techniques”*. Approaching entrepreneurship as a method means teaching a way of thinking and acting built on a set of assumptions and using a portfolio of practices to encourage creating.

The method forces students to go beyond understanding, knowing, and talking. It requires using, applying, and acting. The method requires continuous practice (see Figure 2.4). Therefore, our underlying assumptions of the method include the following (Neck and Greene, 2011, p.62):

1. It applies to novices and experts: the assumption is that the method applies across student populations and works regardless of experience level. What is important is that each student understands how he or she views the entrepreneurial world and his or her place in it.
2. The method is inclusive, meaning that the definition of entrepreneurship is expanded to include any organisation at multiple levels of analysis. Therefore, success is idiosyncratic and multidimensional.
3. The method requires continuous practice. The focus here is on doing and then learning, rather than on learning and then doing.
4. The method is for an unpredictable environment.





**Figure 2.4. Method versus process in entrepreneurship capitalisation**

**Source: Adapted from Neck and Greene (2011)**

Figure 2.4 contrasts teaching entrepreneurship as a method and as a process. As Neck, Greene and Brush show us, the method view requires a different approach to teaching and learning. The method view is not about a class, a course, or even an entrepreneurship curriculum. It is concerned with inculcating a spirit of entrepreneurial thinking and acting into each and every student so that they may create their future regardless of context.

Billett (2010) notes that experiences from practices are “*seen as adjunct to an educational provision that is organized and structured in colleges or universities or through programs offered by professional bodies and other agencies, rather than learning experiences that are both legitimate and effective in their own right*” (p.21). Within the realm of practice theory, practice is defined as “*the enactment of the kind of activities and interactions that constitutes the occupations*” (Billett, 2010, p.22). The practice-based approach as a model of learning to support entrepreneurial action is positioned in contrast to traditional educational experiences. Neck, Greene, and Brush do not promote the pure practice models that ensure competence in a specialized occupation such as medicine, law, or even in a symphony orchestra. On the contrary, the goal of promoting a practice-based approach (Neck, Greene, and Brush, 2014) is focusing on synthesis that encourages the practice of actionable theory. Rather than a narrow view of learning through practice, which requires specific knowledge to enact the practice, the practice-based approach aligns with a broader perspective.

A noted criticism of practice theorists is that they often treat practice as a singular and distinct construct while overlooking the complexity, diversity, and range of practice (Dall’Alba and Sandberg, 2010). This is precisely why Neck, Greene and Brush say that entrepreneurship is only based on practice but must submit that entrepreneurship is a method composed of a

portfolio of practices. In addition to learning through practice, it is necessary to learn about practice. Both contribute to skilful performance (Dall’Alba and Sandberg, 2010).

The complexity of practice theory cannot be overstated, while entrepreneurship can be considered as a method or even meta practice. In other words, entrepreneurship is a set of practices that describe and give information about the method of entrepreneurship. In the next section we present the combined practices that create a method of thinking and acting entrepreneurially (Neck, Greene, and Brush, 2010).

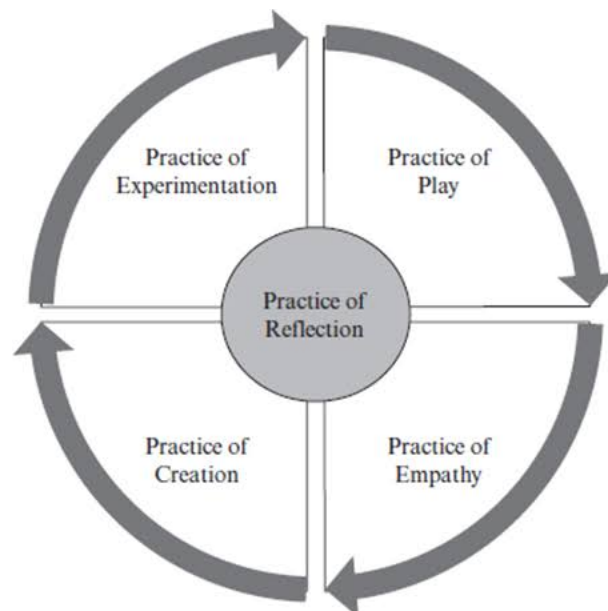
## **2.8 Practice-based entrepreneurship teaching**

Neck, Greene, and Brush (2010) defend their entrepreneurship practices in terms of performance being governed by theory from multiple disciplines within and outside of business administration. They continue by presenting the practices as a background of culture formation and a platform for social structure construction; consequently, those practices are dependent on human agency and social interactions. Through sustained practice, habits are formed that expand existing knowledge structures and encourage new ways of action. Thus, entrepreneurship is learned through practice. They conclude by arguing that practices create shared meaning through “shared presuppositions, conceptual frameworks, vocabularies, or “languages” (Rouse, 2006). Entrepreneurship education, through a practice-based approach, becomes a community of learning that is student centred.

Chase and Simon (1973) studied chess players and estimated that mastery was achieved only after 10,000 to 50,000 hours of practice. More recently Campitelli and Gobet (2011) estimated that chess players need only 3000 hours of deliberate practice and found that other variables such as cognitive ability contributed to mastery. Deliberate practice has been applied to entrepreneurship to show how some entrepreneurs outperform others. Baron and Henry (2010) proposed that expert performance resulting from deliberate practice could differentiate successful entrepreneurs from those who are less successful. They argued that deliberate practice by entrepreneurs could enhance cognitive resources while also increasing motivation, self-efficacy, and self-control, like chess players, athletes, and musicians practice for prolonged periods with high focus. Baron and Henry (2010) admitted that prolonged practice may not work for start-up entrepreneurs, nor is it clear what specific skills they would deliberately practice over and over.

To resolve this dilemma of extreme amounts of devoted time, Baron and Henry (2010) examine the entrepreneurial learning literature. They introduce two types of learning: experiential learning and vicarious learning (Kolb and Kolb, 2005). For example, quarterbacks can learn while playing football (experiential learning) or they can learn by watching tapes of other quarterbacks (vicarious learning). However, this leads us to an important question related to the practice-based approach. How does the practice-based approach differ from Kolb's popular notion of experiential learning? Kolb (1984) defines experiential learning as knowledge created through the transformation of experience. He emphasises a focus on the process of learning rather than on outcomes of learning among the knowledge created and recreated through experiences. In other words, experiential learning emphasises the experience, feedback from or interaction with others on the experience, and self-reflection on the experience (Kolb, 1984; Jennings and Wagnier, 2010).

The practice-based approach of Neck, Greene, and Brush complements that of Kolb and other experiential learning theorists. Their approach is mostly concerned with learning within the practice as well as learning through practice. Thus, the only way to learn within the practice is through experience. In each of the entrepreneurship learning practices proposed (Neck, Greene and Brush, 2014), we find the essential elements of experiential learning, such as innovation, communication, interpretation and history (Higgins and Elliott, 2011).



***Figure 2.5. The practice of entrepreneurship education***

**Source: Adapted from Neck, Greene & Brush (2014)**

Viewing entrepreneurship as a method allows a better understanding of what is meant by practice. The concept of practice relates to the acquisition of skills, knowledge and mindset through deliberate hands-on, action-based activities that enhance development of entrepreneurial competencies and performance (Neck, Greene, and Brush, 2014). Given the complex and multifaceted nature of entrepreneurship, a single practice is not possible. Therefore, Neck, Greene, and Brush introduced five specific practices of entrepreneurship education that represent the earlier notion of synthesis (Figure 2.5) as the integration of theory and practice-actionable theory. The five practices include: the practice of play, the practice of empathy, the practice of creation, the practice of experimentation and the practice of reflection. The different five practices are discussed in detail in the following paragraphs through an interesting article produced by Yamakawa, McKone-Sweet, Hunt and Greenberg (2016) at Babson College in Massachusetts, where it was explored whether a pedagogy can be developed to teach students this method. Yamakawa et al. discussed the implications that this pedagogy of practice-based learning (Neck, Greene and Brush, 2014) has for expanding the practice and objectives of entrepreneurship education.

This pedagogy was developed at a college where all first-year students were required to take a year-long foundation course in entrepreneurship. The course was initially designed as an immersive experience in a start-up business. Working in new venture teams, students would generate a business idea, study the feasibility of that idea, solicit a loan from the college for up to \$3,000 to start the business, run the business for three months, and then close it down. All profits would go to a not-for-profit community partner. While the course was quite successful and won a series of awards as well as elevated the reputation of the college, in 2010 the college undertook a major curriculum revision. At that time, the college made a strategic commitment to focus on the development of all students as entrepreneurial leaders who have the ability to create social and economic value. The redesign of the course began with the following pedagogical goals:

- Experience the nature of business as an integrated enterprise
- Practice entrepreneurial thought and action (the entrepreneurial method)
- Identify, develop, and assess entrepreneurial opportunities that create social and economic value
- Analyse both the local and global context as it relates to entrepreneurial opportunities

- Explore the self, team, and organisation in relation to entrepreneurial leadership

These objectives, and in particular the focus on teaching the entrepreneurial method, required a redesign of several major components of the course. Most importantly the entrepreneurship pedagogy was completely revised to focus on teaching students the two logics that underlie the entrepreneurial method (Sarasvathy, 2001). Second, organisational behaviour was brought into the course as the second major academic stream. As co-creation is fundamental to the entrepreneurial method, organisational behaviour naturally aligns with entrepreneurship. The organisational behaviour curriculum was designed to teach students to understand who they are, how they work with others, and how to understand their broader network and context so that they can use this knowledge to engage others to explore an opportunity and to work more effectively with a start-up team (Greenberg & Hunt, 2015). The applied pedagogy according to practice-based approach (Neck, Greene, and Brush, 2014) was made as following:

### **2.8.1 The practice of play**

The curriculum encourages students to practice “play,” which enables them to develop a free and imaginative mind, to see a wealth of possibilities, a world of opportunities and a pathway to more innovative ways of being entrepreneurial (Neck et al., 2014b). The underlying assumptions behind two different categories of play are important in this regard. “Games to play” are typically problem-solving activities in that they are structured with fixed rules and are orderly processes leading to a known desired outcome (Schell, 2001). “Fun to play” games are more superfluous and voluntary, spontaneous, relatively unorganized, for pleasure and enjoyment with surprises (Huizinga, 1994; Piaget, 1962). Fun to play games may not have a recognisable goal or end point. These two categories of games align well with causation (games to play) and effectuation (games for fun). Both categories of games are used throughout the course as students learn to engage causation and effectuation to tackle unknowable opportunities.

### **2.8.2 The practice of empathy**

Empathy refers to an individual’s ability to understand the emotions, circumstances, intentions, thoughts, and needs of others, and to offer sensitive perceptive and appropriate support (McLaren, 2013). Empathy develops over time through interaction with others, through training and intentional experiences (Decety & Jackson, 2004). In this curriculum,

students learn to connect with one another in a meaningful, more empathetic way. Drawing students' attention to the diversity of their teams and the classroom itself strengthens empathy. Likewise, empathy is an underlying foundation for effectively working with customers and ultimately understanding a market. Empathy is a basis of the entrepreneurial method, which depends on bringing others along to pursue a new opportunity.

### **2.8.3 The practice of creation**

The curriculum encourages students to practice “creation”, which literally allows them to create new products, services, and processes in the context of their start-up ventures. Creation is the terminology used in this curriculum for approaching effectuation: start with what you have, whom you know, and what you can afford to lose. This all begins with developing an understanding of who you are with regard to skills, knowledge, style, identity, etc. Students learn not to have a bias towards a particular end, but to create value through actions, using the resources at hand, and enrolling others in the process.

### **2.8.4 The practice of experimentation**

Creation engages experimentation as it leverages design thinking to help move students beyond their often self-imposed creative roadblocks (Brown, 2010). Creation also addresses the need to deal with the fear of failure, the value of chaos, and deferring judgment on what appear to be crazy ideas (Adams, 1986, Neck, 2010).

### **2.8.5 The practice of reflection**

The practice of reflection, while often neglected, is the foundation for each of the other practices (i.e., play, empathy, creation, and experimentation). Reflection is defined as “thinking about thinking” (Schraw & Dennison, 1994). Reflection encourages students to deepen their understanding of their experience, to connect theory and practice, and to build their learning by examining what happened and why (Schraw & Dennison, 1994). Reflection is particularly important under conditions of high uncertainty, which is when the entrepreneurial method is most likely to be used (Neck et al., 2014). Reflection is also the primary technique for teaching students to codify practice-based learning (Neck et al., 2014). Hence, reflection is paramount to students' ability to integrate theory and practice. By integrating these pedagogical practices into the curriculum, students learn and understand the

entrepreneurial method in a sustained, meaningful manner. The goal is to teach students to synthesise theory with their experience-based learning to develop deep understanding and skill with the entrepreneurial method.

In the next section we explore action learning, one of the approaches that puts reflection in the centre of its functioning, allowing us to think, act and, moreover, reflect on existing situations. Indeed, action learning is a complementary and/or alternative means of educational instruction in some schools, as is demonstrated in the following section.

## **2.9 Action-learning entrepreneurship teaching**

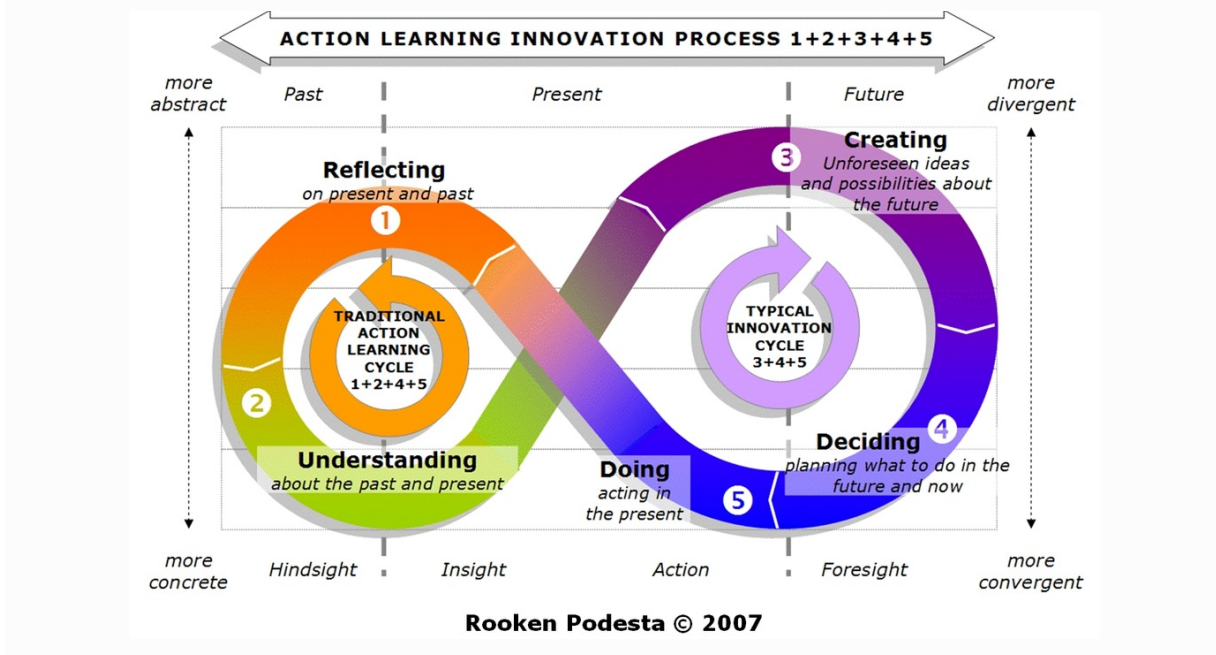
Action learning has been underpinning an increasing amount of training practice throughout the world for nearly seven decades since its genesis in the work of Reg Revans (Zuber-Skerritt, 2002). These environments have ranged from private companies (Marquardt, 2004) to public sector organisations (Blackler and Kennedy, 2004) and even to development programs in Third World nations (Mayoux, 2005). Furthermore, in recent decades, it has been introduced either as a complementary and/or alternative means of educational instruction in some schools (Wilson, 1992) and tertiary institutions throughout the world (Brunetti, Petrell and Sawada, 2003).

Marquardt (2000) argues that action learning derives its power from the fact that it does not isolate any dimension from the context in which managers work. It develops the whole leader for the whole organization. It also recognises that what leaders learn and how they learn cannot be disassociated from one another, for how one learns necessarily influences what one learns. Marquardt explored in his work on action learning both what leaders need to learn to be successful in the 21<sup>st</sup> century and how action learning is ideally suited to develop these attributes and skills. He specifically mentions systems thinker, change agent, innovator and risk-taker, servant and steward, collaborative coordinator, teacher, mentor, coach and learner visionary, and vision-builder all skills needed by entrepreneurs as the leaders of the near future.

Rooker (2010) used a wide range of processes, practices, tools, and techniques to help organisations integrate the distinct but complimentary behaviours and processes of “action and learning” and “creativity and innovation”. These include dialogue, appreciative inquiry,

systemic competence mapping, design and systems thinking, organisational learning and impact analysis.

In Figure 2.6 is the model of action learning developed by Rookien and Podesta (2007). This model describes and explains the link between action, learning and innovation. It is a synthesis of Kolb's learning cycle and the S-curve development model. This is the first model that integrates these two cycles with the dimensions of time, activity and quality of thinking.



***Figure 2.6. The action learning practice of entrepreneurship education***

Greater collaboration between the academic and business communities has been advocated for many years (Cochrane, 1988; Forcht, 1991; Gabor, 1991; Orr, 1993; Portwood, 1993; Reed, 1993; Warwick, 1989; White, 1993). For this closer working relationship, action learning seems to be an effective connector. The number of multinational corporations who use action learning for managerial, professional, team and workforce development is diverse, ranging across such well-known names as Samsung, Dow, GE, Deutsche Bank, Boeing, Sodexo, Novartis and Nokia (Marquardt, 2004). This creates a level of acceptance by business leaders for young managers, educated partly through action-learning methods (Mueller et al. 2006).

Especially in entrepreneurship, this appears to be a most appropriate approach when developing and understanding business management, and the outcomes of one global



entrepreneurship education programme have been reviewed for this thesis, where university students and CEOs of the world's leading companies (from firms such as HSBC, Metro, KPMG, Korn/Ferry, Cargill, Wal-Mart, Henkel, AIG, etc.) come together to jointly develop entrepreneurial talent (Mueller et al. 2006).

Mueller and his researcher colleagues reviewed an action learning entrepreneurship programme, uniformly applied in more than 40 countries. For their research, they reviewed seven countries on three continents: Germany, Singapore, China, South Korea, New Zealand, the United States and Australia. The Students in Free Enterprise (SIFE) program empowers students to teach free market principles, business ethics and sustainable enterprise strategies to members of their local communities. The assumption is that these students thereby learn entrepreneurship through action, and it can be confirmed that some learning does occur in this alternative education format.

Student reports show extraordinary learning gains and high participant satisfaction through this action learning activity. It is not clear whether this high level of student interest stems from the fact that this activity is outside of the standard school institution format, or whether the associated travel opportunities to local, regional, national, and global competitions factors into the thinking of students. In some cases, the motivation appears to be centred around the opportunity to meet executives of leading companies—corporate luminaries such as Henkel's Board Chairman Dr. Ulrich Lehner or the Wal-Mart Chief Executive Officer Lee Scott who spend hours with SIFE students, reviewing their project work. Participants and their academic faculty members report that significant entrepreneurship skills have been generated, exceeding those available through more traditional methods. Corporate executives indicate satisfaction with the skills generation for their prospective junior management hires (Mueller et al., 2006).

Mueller's work also attempts to confirm the suitability of the PETE (practical entrepreneurship teaching engagement) model (Mueller/Thornton, 2005) to identify and describe ingredients of an interactive action-learning programme in business. The PETE model seeks to explain that the presence of several factors can improve the effectiveness of action learning programmes in the context of this specific activity.

That this learning approach can be suited to the university context can be seen in a description of action learning as a family of research methodologies that pursue action (or change) and research (or understanding) at the same time. Gammie describes the provision of action

learning in the business school classroom as offering a "paradigm of synthesis, which attempts to bridge the gap between knowledge and experience by providing them both simultaneously" (Gammie, Hornby, 1994). In most of its forms it does this by *action and critical reflection and in the later cycles, continuously refining methods and interpretation in the light of the understanding developed in the earlier cycles* (Gammie, Hornby, 1994).

Dilworth, in his review of action learning, "Action Learning in a Nutshell" (Dilworth, 1998), cites an example of Revans's work in great technological expertise and an emphasis on research and development. The executive examined the company in detail and interviewed a range of employees and management, eventually pinpointing the problem: a compensation system that had been in place for many years and was predicated on the weight of steel shipped. As the steel being shipped was much lighter than when the system had initially been put in place, there was no incentive towards greater production. The situation was remedied by the development of a further action learning set within the company structure.

The important components of this process, as outlined by Revans, are that fresh eyes brought to problems trigger fresh questions. Action learning is not without its critics, and we speculate that the divide between business expectations of practically relevant education outcomes will clash more intensely in the future as government-driven funding mechanisms place greater pressure on business schools to engage in traditional academic publishing efforts. Consistent with Pedler (1983) and Mumford (1995), several authors find that the existing definitions either overemphasise one element or miss another related to action learning due to its flexibility and widespread usage.

This raises the issue of how action learning can be introduced to business school teachings as an effective complement to traditional teaching methods. This author suggests that the practical entrepreneurship teaching engagement (PETE) model (Mueller/Thornton, 2005) can guide educators in their future design and application of action learning models. As an entrepreneurship education technique, action learning is different from and more comprehensive than other kinds of management education approaches. It advocates focusing on the learners rather than on the teachers (Mumford, 1984) and challenges the passive approach to learning characterised in the traditional teaching/learning techniques (Leith & Harrison, 1999).

The action learning approach, on the other hand, has its critics. Some challenges include those of the psychological and political processes intrinsic to action learning, which promotes

practise at the expense of theory thereby furthering concerns about its philosophical base (Raelin, 1998). Smith (1988) identified and analysed a weakness in action learning, the lack of a balance between knowledge and practice, which has been an on-going debate in the field of management development (Silver, 1991). Another criticism of action learning by Revans, which has been extended by Mumford (1996) and Pedler (1991), is the role of mentors and tutors. As part of the student teaching/learning program, frequent feedback was received during coaching sessions with the business school MBA students about the fact that action-learning practice is very effective in academic mentoring and coaching however the tangible theoretical background is not visible enough; yet action learning practice in an academic context has considerably evolved to the point where the practice of action learning is framed under strong academic settings called action learning projects, where MBA students are asked to write dissertations providing reflections on their projects through the pure academic structure of their document.

Many entrepreneurial characteristics, such as self-confidence, persistence, and high energy levels, cannot easily be acquired in the classroom (Miller, 1987), and this programme engages students in their communities to perform in a real environment, overcoming market resistance, structuring effective programmes, measuring their outcome, and demonstrating the results to executives. These projects can resemble real-life managerial challenges similar to those the students would be expected to perform once they have left university and have begun to work as junior-level managers. As part of this action-learning challenge, participants need to create an effective internal governance system, develop fundraising techniques to remain fiscally solvent, create a sales approach for their projects and think about succession planning within the transient world of student life. This comprehensive set of real-life managerial challenges is speculatively considered to be one of the reasons why CEO-level senior executives of some of the largest firms worldwide (HBSC, Unilever, PepsiCo, Wal-Mart, etc.) support this effort.

The interest of Mueller, Wyatt, Klandt, and Tan was not merely in assessing such a uniformly administered programme in different countries for effectiveness, but they were keenly aware of the cultural difference among these countries. While Germany, the United States, Australia, and New Zealand have been 'free market' countries for all of their existence, China and Singapore's business leaders operate with a strong recognition of political dogma overshadowing economic activity, as is the case in Algeria. Although values in China are changing, and resilience and resourcefulness will continue to elevate them towards success

(Liao and Sohmen, 2001), not all commonly measured entrepreneurship values easily transfer from West to East. Some entrepreneurial attributes, such as a positive response to change, and initiative and profit orientation, appear to be in conflict with Chinese values (Kirby and Ying, 1995), and more recent work found that a sharp contrast existed between Chinese entrepreneurs and Chinese managers regarding individualism, risk and openness to change. In some areas, particularly risk tolerance, Chinese entrepreneurs scored higher than their American counterparts (Holt, 2000).

Equally important, entrepreneurship has been on the rise in South Korea, with one out of 11 people in the year 2000 working for relatively young companies, firms that were established less than 3.5 years before (Park et al., 2001). The SIFE approach actively focuses on gender inclusion through specific sponsoring of women entrepreneurship (through HSBC), and thus we connect this work to the growing trend of women in business in Asia, specifically in South Korea where more women are participating in business. About 33.9% of all business establishments in South Korea were owned or headed by women in 2000 (Korea National Statistical Office, 2001). We therefore conclude that an entrepreneurship education system is of great importance in these countries, where private ownership of assets and personal profiting from business opportunities has not always been the norm.

Attesting to the close interest executives have in the outcomes of such an effort, HSBC's Chief Executive Officer Paul Lawrence in Singapore hopes to "help university students in Singapore to expand their skills and outlook, and to prepare themselves for the opportunities presented by businesses in the global economy" (Lawrence, 2005). Wal-Mart's president in Korea, Santiago Rocés, expects the students to "make positive progress to build a better world of business" (Rocés, 2005). At the end of each year of student performance, SIFE teams compete in front of senior executives for the right to represent their country during a global competition, undoubtedly adding an incentive to students as these global events are held in places like Toronto, Barcelona, Paris, etc. The interaction between the executives and the student participants creates an innovative forum for leaders to evaluate prospective new staff members, and for students to better understand the needs of the firms. Anecdotal evidence suggests that several of these participating students are hired into supporting firms, bypassing the traditional recruitment pathways.

Mueller and Co have asked participants of the Students in Free Enterprise programme in seven countries to complete a web-based survey (<https://enactus.org>), and they have assured

that web access was available to all of those students in their respective countries. In China, where university servers and networks did not universally allow web access to this specific site, they have made hardcopy survey forms available. The survey was in English, since the SIFE presentations are also operated in English. The response rate varied country-by-country. While it was significant in Korea, Singapore and China (with more than 60% of all SIFE students completing the survey), the participation rate dropped for Australia (18%) and New Zealand (30%) and was low in the US, where they sampled the responses mainly from one large university only, and in Germany, where the effort had just started. The total survey population number was 436.

They have also interviewed more than 30 senior executives of multi-national organizations in New Zealand, Australia, South Korea, Singapore, the United States, Germany and China to investigate how effective a programme is, through which those firms create practical entrepreneurship experiences for students, and then recruit those programme participants as young managers into their organisations. They have then applied the PETE (practical entrepreneurship teaching engagement) model (Mueller/Thornton, 2005), (see Figure 2.7), to validate the approach of this programme and to reconcile it with the requirements of the marketplace. The PETE model describes ingredients of an effective interactive managerial learning programme and seeks to explain that the presence of several factors can improve the effectiveness of practically relevant entrepreneurship education.



***Figure 2.7. Practical entrepreneurship teaching engagement (PETE)***

This entrepreneurship teaching model attempts to isolate factors, which can contribute to high student engagement and outcome levels by creating a sense of, first, **belonging** by creating a committed and motivated sub-group of students with a special group membership in an organisation, either belonging to the idea of their venture, the school, faculty or the teaching institution or shared cultural values. The second is **challenging** the students to practical work

outside the classrooms and requiring significant personal commitment to achieve acceptable outcomes, particularly in providing concrete deliverables of prototypes of their products or actions to the benefit of their community. Third is including a **real-life competition** in front of senior corporate executives of world-class corporations, which is formalised by speed-dating venture pitches or project reviews which pushed the growing entrepreneurs to be in situations that presented real stress, adversity, and competition. The fourth is **connecting** students to the corporate environment before they leave university; indeed, the competition context and challenging students to practical work outside in the socio-economic world helps to construct a network. Fifth is creating a **signal** effect among other universities, academic mentors and students (and, as they indicated in the responses, also among their friends). This point is necessary for the entrepreneurship culture or brand spreading. Finally, the last is producing a **sustainable** community benefit, which educates the performing students as well.

The role of faculty in this action-learning programme involves innovation from both an organisational and educational perspective. At the heart of the programme is a team of multinational CEOs and presidents who can expose participants to the “real world” and offer practical assistance (including financial support) and advice on the on-going assignment issues of SIFE. The participating executives from companies such as Unilever, HSBC, Philip Morris, Wal-Mart, Metro, KPMG, Bayer, Asahi Shimbun, etc., are universally supportive of this effort. These senior executives comment positively on the quality they have seen when the students present their materials. Two of these comments are shown below, and are suitably representative:

*KPMG is proud to have been a founding supporter of SIFE in China. With the expansion to more than 30 teams this year, we are excited about the many new Chinese students who have participated in SIFE. The ability to develop, deliver, measure and manage projects is essential for successful business leaders and I am delighted to see the growth of SIFE in China introducing more and more future business leaders to the skills required to be successful in both local and global organizations (Kennedy, 2004).*

*Wal-Mart is a fast-growing company and committed to sustainable global business and people development. Wherever we are, we see SIFE students participating in important community work. They educate our communities about business opportunities, and we congratulate them for their efforts. We also welcome your joining the team with passionate interests and grow with us (Hatfield, 2005).*

Lesley Staples, the human resource director Asia for Cadbury Schweppes (Staples, 2005), reports that the company identified at least two students from the Australia SIFE teams whom they would otherwise likely have not been in contact with. Those students were hired, performed above average, and one was sent recently on a fast-track development programme in Singapore, where he excelled.

Students join this program for different reasons. While students in China, Singapore, Germany and South Korea were interested in the travel opportunities offered through this activity, “curiosity”, “having fun”, “making friends” and “meeting employers” were highly ranked. Of greater significance is that the traditional academic connections of a university-based activity; “getting academic credit” and “being part of a course” were very poor drivers of motivation for the students. Mueller and Co have speculated that students attach value to the fact that this programme is not part of the school offering, and that they actively look for an engagement which reaches beyond the boundaries of conventional academic teaching.

In reviewing the expectations of students, **Mueller and Co found that the majority of all students are looking to learn “new skills” and to “meet executives”**. To a lesser degree they indicate an interest in “making new friends” and “getting a job”, although that intent is likely also reported in the response of wishing to “meet executives”. Responders in the US, where this programme has been operational for more than 25 years, focus on job opportunities, which are offered during large job fairs attached to SIFE competition events. Thousands of students pour into the national US competition event where more than 100 firms have recruitment booths, and large numbers of students are hired on the spot by brand-name companies, such as Wal-Mart, Walgreens, HSBC, AIG, etc. “When you come to a SIFE event, there is a belief that this is the future generation that really does have the potential to change the world, and to be a part of that is very extraordinary.” says Denise Morrison, president of Campbell USA (Morrison, 2005).

Chinese students, culturally more focused on creating large networks of friends and family, value the opportunity to enlarge their circle of friends.

The participants reported even more uniformly the levels of learning that were achieved. Aside from a slightly less enthusiastic affirmation of learning in Australia and Germany, 45%-55% of the students reported “a lot” of learning, and another 35%-50% reported “a bit” of learning. This appears to be quite an achievement, given that this is an unstructured, mainly self-driven series of events, which is purposefully unclear regarding the specific steps

required to achieve a successful outcome. In fact, the students do not know until the day of their national competition how their projects are rated by the judges and thus are largely left to their own devices in the development of their deliveries.

Mueller, Wyatt, Klandt and Tan (2006) have investigated an action learning based entrepreneurship programme in seven countries on three continents. This programme attempts to give students the opportunity to apply their academic learning in a practical environment. These students have grown up with different cultural norms governing their rules of interaction and with different economic systems favouring/disfavouring free market enterprise. It is therefore remarkable for these participants to uniformly and consistently report outcomes which propel their learning ahead of those who do not engage in action learning events like these. These students, who work in teams for which they establish self-governance, must create and “sell” their own design of projects, and then perform those projects. At the end of each programme year, student teams from each country compete before senior executives and the winning team travels to a world event. These contact and travel incentives seem to attract students, who report high levels of engagement in this extracurricular work, as well as high rates of outcome satisfaction after completion of their work. Executives also appear attracted to this programme and support this work through their personal attendance at competition events as mentors to students and with corporate financial contributions. Mueller et al. have not investigated whether there is a tangible effect on the course grades of students after they have completed the program, and it is of interest whether the participation in this programme does create job opportunities these students would not otherwise have.

To conclude this section, it can be said that the action learning based method enables students to start new business ventures as self-started work experience, and to influence beneficiary programmes. Indeed, action learning applied to entrepreneurial learning in relation to new venture creation complements our understanding of the conceptual and practical connections between entrepreneurial learning and action learning. Action learning applied to entrepreneurship learning can be accomplished through universities working collaboratively to make a significant and coordinated impact on graduate entrepreneurship by using action learning as a mediating means. There is a clear connection between action learning with theories of new venture creation and entrepreneurial learning, with reference to relevant literature showing increasing evidence of innovative practices of action learning within entrepreneurship education. Reflections for future development of this approach in the



employment and economic challenges and beyond are necessary and surely useful since it is increasingly clear that graduate self-employment and entrepreneurship must contribute to educational and economic development.

The next section presents a discussion about the importance of focusing more on practical approaches necessary to deliver entrepreneurship learning especially in the higher education context.

## **2.10 The importance of practice-based entrepreneurship learning**

Contemporary theories and practice in entrepreneurship education indicate that the related literature is articulated around major types of education preoccupations, and in Algeria that is not an exception. Indeed, they include: (1) preoccupations with the social and economic roles of entrepreneurship education for individuals and society as well as with the institutions of higher education themselves (Beggarr, 2016); and (2) preoccupations with the systematisation of entrepreneurship education (Boukhari, 2016). Preoccupations with the content matter to be taught and how this content should be delivered, and preoccupations with considering the needs of individual students in structuring teaching interventions have become an imperative mission. Yet, three education preoccupations, that is, those proceeding from social-cognitive, psycho-cognitive, and spiritualist or ethical theories, remain under-addressed (Bécharde and Grégoire, 2017).

The gap between an academic education in business and the needs of the business community has occupied researchers for some time. Entrepreneurship educators are torn between the demands of industry for developing specific and practically relevant knowledge, and the academic requirements for a well-grounded, widely applicable education. Entrepreneurship education has long been identified as a critical factor in preventing future high levels of long-term unemployment, and there is evidence of a strong correlation between educational level achieved and high income over a lifetime (De Faoite, Henry, Johnston & Van der Sijde, 2003). Nearly all the academic literature outlining the genesis of business and entrepreneurial studies is preoccupied with this gap.

Action learning is only one strand of the various models that have been adopted by business schools in response to criticisms of too traditional and limited teaching methods. In undergraduate courses, the business plan, the use of case studies, and the business simulation are common teaching methods.

Mwasalwiba (2010) states that, in theory, most scholars agree that action-based pedagogical approaches are the most suitable for entrepreneurial education, but in practice the most widespread pedagogical approaches are theoretical, traditional and passive lectures, business plan creation, guest speakers and class discussions. The reasons for this are primarily cost, culture, lack of methods, and lack of incentives (Mwasalwiba, 2010, Ardalan, 2008). This has led to a situation where most genuinely entrepreneurial initiatives at higher education institutions are extracurricular, leaving most students out of the entrepreneurial loop completely. Some scholars even suggest, *most educational programs are nothing but temporary fashion* (Lautenschläger and Haase, 2011, p.147).

The solution many leading scholars alongside international entities such as the EU and World Economic Forum argue for is a paradigm shift in education from traditional to entrepreneurial approaches (Binks et al., 2006, Hynes and Richardson, 2007, Wilson, 2008, European Commission, 2010, Gibb, 2002, Kyrö, 2005, Moroz et al., 2010, European Commission, 2006, Volkmann et al., 2009).

Many scholars argue for the value of action-based entrepreneurship education programmes as compared to traditional theory and lecture-based teaching (Mwasalwiba, 2010) when preparing students for entrepreneurship. Honig (2004) proposes an experiential learning-based model for educating within entrepreneurship, stating that programmes that provide real-world experience have proven to be successful in enhancing entrepreneurial intentions.

Rasmussen and Sørheim (2006) illustrate that action-based entrepreneurship education adds understanding about business opportunity and context, and can contribute to increasing individuals acting entrepreneurially, both as entrepreneurs and as complementing team members. Neck and Greene (2011) argue for the need for a new entrepreneurship education approach based on action and practice, illustrating this with a quote from Plaschka and Welsh (1990, p. 66): *As the criticisms of business education show, current analytical functional quantitative, tools oriented, theoretical, left-side of the brain, overspecialized, compartmentalized, approaches are not adequate to begin solving ill-defined, unstructured, ambiguous, complex multidisciplinary, holistic, real world problems.*

The teacher-centred approach is primarily concerned with the transmission of knowledge. According to McDonald (2002) the work of teachers and lecturers depends upon the abilities, skills and efforts of their students: *Student achievement is at the forefront of teacher-centred curriculum, but teachers are driven to meet accountability standards and often sacrifice the*

*needs of the students to ensure exposure to the standards.* Teachers in a teacher-centred environment focus more on content than on student processing.

Essential in a learner-centred approach is that the diversity of learning characteristics of all learners is considered with specific emphasis on low-performing learners. According to McCombs (1997) the focus in a learner-centred approach is on individual learners' experiences, perspectives, backgrounds, talents, interests, capacities, and needs. She defines learner-centred, from a research-based perspective, as a foundation for clarifying what is needed to create positive learning contexts to increase the likelihood that more students will experience success. To create an effective learning situation, McCombs says that three conditions need to be met:

*The learning environment should facilitate the exploration of meaning. Learners must feel safe and accepted, and they must understand the risks and rewards of seeking knowledge and understanding. The environment must create a setting wherein involvement, interaction and socialization are combined with a business-like approach to accomplishing a certain task.*

*Learners must be given frequent opportunities to confront new information and experiences in their search for meaning and understanding. Those opportunities should not be provided in a passive receptive form by merely giving information. New meaning and understanding should be acquired through a process of personal discovery. These methods should be tuned to the individual and adapted to the learner's own style, and pace of learning.*

*From the other side, entrepreneurship educators need to be more flexible and demonstrate a willingness to adjust their strategies in order to meet the diverse emergent needs for students. In many circumstances, educators need to support future entrepreneurs in the learning process by making them recognize multiple opportunities for learning and develop the necessary skills and abilities to become more effective at self-direction (Fayolle, 2007).*

The practice-based learning perspective shifts the responsibility of organising knowledge onto the student. It focuses more on problem-centred or contextually defined knowledge as opposed to discipline-defined knowledge. The degree and stream of understanding are concentrated around the student's own competencies and capacity of reflection on his or her

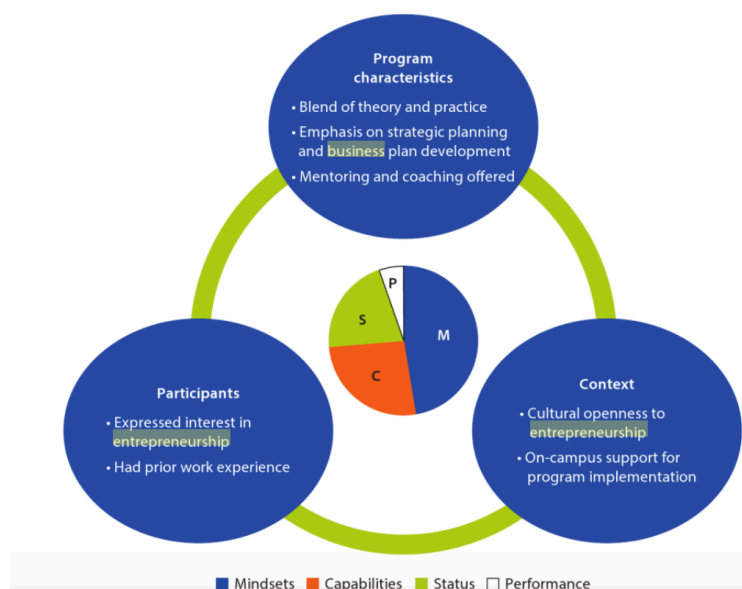
own actions, not necessarily the faculty's orientation and/or academic proficiency. By taking a learning perspective, universities are required to consider all internal and external stakeholders, including faculty, students, administrators, employers, alumni, and the community, since it is the entire environment and context in which learning occurs (Fayolle, 2007), and for sure these settings may generate some challenges that will be presented in the next section.

## **2.11 Challenging aspects of entrepreneurship education (EE)**

Educational institutions play a major role in the development of early entrepreneurial competencies which later become manifest in the form of entrepreneurial activity. Research indicates that educational institutions as well as the members of the faculty involved in entrepreneurial activity play an important role in developing entrepreneurial spirit among students through innovative programmes and a research-oriented culture (Kuratko, 2005; Honig, 2004; Carrier, 2005; Linan & Chen, 2009; Krueger, Reilly & Carsrud, 2000; Lüthje & Franke, 2003, Souitaris, Zerbinati & Al-Laham, 2007).

The issue whether being innovative and entrepreneurial can be taught is highly relevant given its economic importance. There are those that contend that being an entrepreneur is more a talent or an innate aspect rather than a competency that can be acquired and learned. Entrepreneurship can certainly be taught, but it depends largely on the pedagogical approach and the context wherein teaching and learning takes place. It is a competency that can be acquired. Competencies in this context refer to a combination of skills, knowledge, and attitude (Kessels, 1999). Iandoli and Zollo (2006) define competencies as the capability of an entrepreneur to acquire resources, control the internal/external relationship, and integrate these resources with an action plan aimed at achieving specific objectives and implementing a consistent monitoring of a chaotic and complex set of very different processes. So, the problem-solving capability of an entrepreneur is an important attribute needed to achieve these objectives. This is an important starting point in the definition of competencies students are expected to develop. Regardless of the expansion of entrepreneurship teaching around the world (Valerio, Parton & Robb. 2014), the contentious debate about the relevance, pedagogies, and effectiveness, even about the sense of EE in general, is ongoing. In this disposition, the main challenges remain on the measure of how to “produce” entrepreneurs. Rethinking the appropriateness of EE in the higher education sector is necessary.

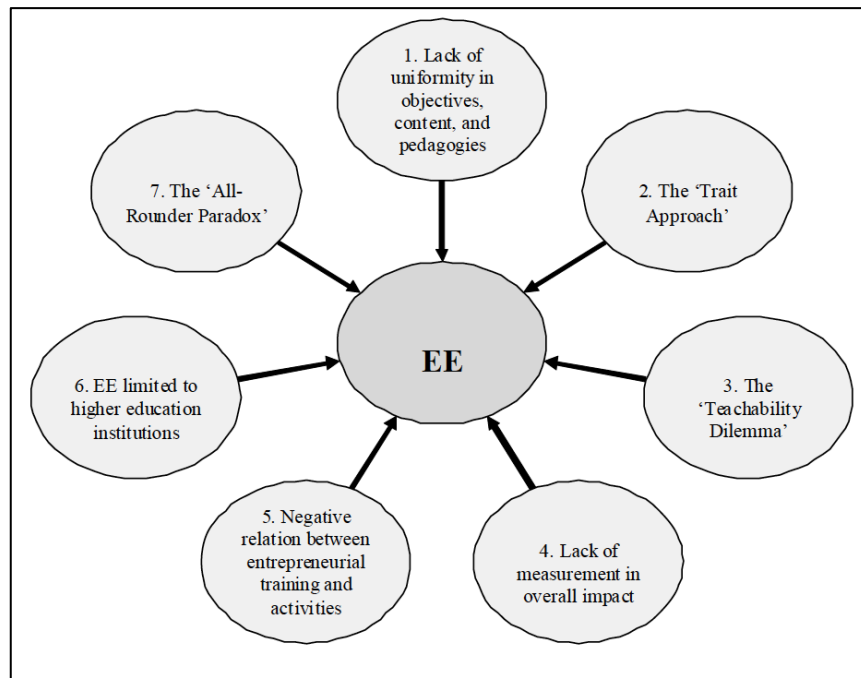
Entrepreneurship has become a field of teaching because of the importance ascribed by politicians and researchers (Lautenschläger, 2011). However, some arguments indicate that the efforts to design and implement EE are nothing but temporary fashion. Although the evaluations of different EE concepts give reason to believe in their success, the role of EE is not as clear as it seems to be. Almost every entrepreneurship programme that has been launched aims at promoting an entrepreneurial spirit amongst students. Even though a report sponsored by the World Bank in 2014 (Valerio, Parton & Robb. 2014) shows that there are four main criteria that indicate success or not of EE. The first one is to work on the mindset of students, the second is capabilities, the third is status showing individuals' decisions to seek out new capital and start ventures, and the fourth criteria is the performance of the launched start-ups (see Figure 2.8).



***Figure 2.8: Entrepreneurship education—higher education***

**Source: (World Bank, 2014)**

We see clearly that EE in higher education provides relatively successful results in terms of mindset, capabilities, and status. EE initiatives aim to perform venture launching, even if the desired results are below expectation. Is this really a measure to overcome the deficits in the entrepreneurial thinking and acting? Lautenschläger (2011) presented seven arguments that constitute crucial doubts on the sense of EE. Figure 2.9 gives an overview of these arguments.



***Figure 2.9: Seven arguments against entrepreneurship education***

**Source: (Lautenschläger, 2011)**

The first argument is “the lack of uniformity in objectives, content, and pedagogies”, knowing that scholars have presented a variety of different concepts about EE, and their heterogeneity is abundant (Henry, Hill, & Leitch, 2005; Mwasalwiba, 2010). The analyses of specific EE programmes, general literature reviews, as well as practical experience indicate that little uniformity exists regarding definition, objectives, content, and pedagogy (Valerio, Parton & Robb, 2014). However, there also seems to be a disparity between the supply and the expectations of EE (Schwartz & Malach-Pines, 2009). A fundamental concern addresses the economic and social objectives of EE. Laukkanen (2000) as well as Rasmussen and Sørheim (2006) divide EE into two different areas. On the one hand, Sørheim (2006) speaks of “education about entrepreneurship”, which refers to studying entrepreneurship as a phenomenon and theory building. On the other hand, they distinguish “education for entrepreneurship” that addresses the conveyance of knowledge and skills in order to become an entrepreneur. Again, Fayolle (2008) defines the objectives of EE as follows: educating entrepreneurship professors and researchers (theories), preparing entrepreneurial individuals (mindset), and training entrepreneurs or professionals in the field (skills). Whatever the focus is, the teaching methodologies applied in each of these modes differ considerably.

Despite this diversity, a certain consensus exists with respect to some pedagogy that has proven to be advantageous for modelling entrepreneurial individuals. Project-based and

experiential learning seems to be appropriate (Daly, 2001; Jones & Iredale, 2010). Such methodologies are supposed to increase motivation and to install the emotional and intuitive dimensions of entrepreneurship. However, as they are linked with internships and field experience, these approaches, though effective, go far beyond the traditional teaching scheme in higher education and should rather be labelled as “entrepreneurship training”.

The second argument is the “trait approach”. The main proposition of this is the assumption that entrepreneurs have a unique set of stable, inherent, and enduring personality characteristics that favour entrepreneurial activities. These traits are supposed to be permanent and remain consistent across time and context (Cope, 2005). Opportunity identification as one of the key concepts of entrepreneurship (Kirzner, 1973, 1979; Shane & Venkataraman, 2000) does not only involve entrepreneurial knowledge, but also less tangible forms, for instance wakefulness, creativity, innovativeness, proactiveness, risk-taking propensity, and the need for achievement. In Kirzner's (1973, 1979) view, entrepreneurial alertness is an innate ability.

Consequently, as these characteristics are conceived to be inborn and a matter of personality, the possibilities for teaching individuals to become entrepreneurs may be limited in addition to the change resistance mentioned by Hofstede (2010) in his description of the model of six dimensions of national cultures: power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, long/short-term orientation, and indulgence/restraint. Indeed, Algerian contemporary history is highly influenced by the French and USSR cultures as presented in Chapter One, especially in terms of uncertainty avoidance. In an interview, David Birch expressed the following (Aronsson, 2004, p. 289): *If you want to teach people to be entrepreneurs, you can't*. Addressing the question of whether entrepreneurship can be taught, Henry et al. (2005) concluded that the debate would continue. In fact, since most of entrepreneurial knowledge is tacit and a product of the entrepreneur's personality and context, we believe that there is a need for differentiation regarding the teachability of entrepreneurship, which is exposed in the following argument.

The third argument is the “teachability dilemma”. In fact, when comparing the required competencies and qualifications for entrepreneurs with up-to-date EE from the literature review and practical experience like the practice-based approach (Neck, Greene, and Brush, 2014), the “new school” or the “Enterprising Learning Mode”, proposed by progressive entrepreneurship educationalists (Ronstadt, 1985; Gibb, 1993), has in no way been substituted for the traditional EE; the latter is still the predominating concept. Solomon's (2007)

examination of the state-of-the-art EE in the United States indicates that the most prevalent EE pedagogies are class lectures, business plan creation, guest speakers, and class discussions. Too many programmes still conceive EE as an adapted business management education, covering all related functional areas in a quick run, like the start-up weekends in Algeria (GEN, 2017), and using only a few approaches which seem to be suited to transmit entrepreneurial ‘know-how’. Consequently, a “teachability dilemma” (Haase & Lautenschläger, 2010) in EE comes into the picture. On the one hand, tacit and experience-based elements are highly relevant for successful business venturing, and their appropriate conveyance is what differentiates EE from traditional business management education. On the other hand, those qualifications are difficult to convey through EE; they must rather be experienced. In other words, whatever set of qualifications EE provides, it encounters its limitations when transmitting the core principles of entrepreneurship, like mindset, status, capabilities, and performance (Valerio, Parton & Robb, 2014).

The fourth argument is “lack of measurement in overall impact”. Indeed, there are more tangible effects, i.e., economic outcomes measuring entrepreneurial success, beneath this propensity of start-up activities, such as survival rate, new venture’s performance and market share, employment and sales growth, and economic development. In fact, McMullan, Chrisman, and McMullan (2001, p. 38) stress that the objectives of EE should be “primarily economic” and as such “appropriate measures would include businesses started or saved, revenue generation and growth, job creation and retention, financing obtained and profitability”. Of course, both types of effects cannot be judged separately; rather there exists a linkage spanning from the pedagogical to the economic impact. The former does not, per se, generate an increase in welfare, but it is often a precondition for the economic effects. Nevertheless, due to the multifaceted effects that EE could cause, no study has yet measured the overall usefulness and effectiveness towards individuals and society of educating individuals to become entrepreneurs. The bulk of research that has been carried out has barely dealt with measuring the pedagogical impact. Most studies indicate a positive influence on (short-term) entrepreneurial intentions (Lüthje & Franke, 2003; Lee, Chang, & Lim, 2005; Fayolle, Gailly, & Lassas-Clerc, 2006; Souitaris, Zerbini, & Al-Laham, 2007; Pittaway & Cope, 2007). On the other hand, there are recent studies that create doubt about the effectiveness of EE (Franco, Haase, & Lautenschläger, 2010; Oosterbeek, van Praag, & Ijsselstein, 2010). To give an example, the latter analysed the impact of an EE program in the Netherlands. Their results reveal that the intended effects failed to appear: the effect on



students' entrepreneurial skills and intention was insignificant, even negative, respectively. Thus, although a variety of practitioners, educators, and policy makers recite the alleged benefits of EE like a hymn, little rigorous research actually exists, and the conviction of the positive outcomes seems often more ideologically than empirically grounded, as Peterman and Kennedy (2003) alert.

The fifth argument is “negative relation between entrepreneurial training and activities”. In this context, the special topic of GEM 2008 was addressed to EE. It was found that the relationship between training in business creation and entrepreneurial attitudes, aspirations, and activity is generally positive, but varies by phase of economic development (Bosma et al., 2009). Interestingly, the analysis also demonstrates that within the innovation-driven economies, several negative correlations are apparent. Bosma et al. (2009, p. 47) conclude that “governments with low levels of entrepreneurial activity have been investing more in entrepreneurship education and training in an effort to increase entrepreneurial activity”. It is probable that in some industrialised economies and more in other less developed countries, such as Algeria, the educational system is characterised in a way that it prevents young people from developing business ideas and starting a venture. As demonstrated by Taleb, the majority of education systems do not tolerate error. Taleb's concept is beyond the resilient or robust. The resilient resists shocks and stays the same; the antifragile gets better and better. His book *Antifragile* spans innovation by trial and error, life decisions, politics, urban planning, war, personal finance, economic systems, and medicine, in Taleb's uniquely interdisciplinary and erudite style (Taleb, 2013).

The sixth argument is “EE limited to higher education institutions”. Despite the establishment of EE on all educational levels during the last decades, a major part of all the courses and programmes are run within the higher education sector. EE at colleges and vocational schools is an ongoing event; however, the overwhelming majority of the theory and practice in the discipline, not the least cited in the literature, focuses on universities. Under these circumstances, a significant share of the population and, thereby, a considerable proportion of potential business founders are excluded from taking part in EE. It prevents those who are not able or not willing to attend higher education institutions. Most EE seems to be offered only for individuals who fulfil the requirements to enter a university. The reflections depicted earlier, however, underpin a huge entrepreneurial potential outside the academic world. The mere concentration of one, though important, subgroup contradicts the sense of EE, as other individuals are forced or prefer to pursue entrepreneurial activities without formal

qualifications. Indeed, EE is framed generally in the higher education landscape, that is structured by university systems (Aberkane, 2016). Dispute is that we need to challenge this conformism and allow students that are not necessarily university students to integrate into the EE course or programmes, especially because the goal is venture launching and not getting a diploma. In his book, *Free Your Brain*, Idriss Aberkane (2016) defines himself as an entrepreneur, and encourages us to challenge the conformism of the education system in higher education, that aims to fulfil a certain model of students or researchers demanded by the university professional bureaucratic administration (Styhre and Lind, 2009) and in other worst-case scenarios by politicians. Aberkane, instead, defends the legitimacy of an education system that provides concrete deliverables like start-ups and community projects, even inside universities; moreover, he supports what he calls “neuro-ergonomic teaching” based on experiential learning and gaming.

The seventh argument is the all-rounder paradox. Entrepreneurs should have multiple skills and expert proficiency in a significant number of subject areas, especially in all management aspects of businesses as well as its products or services. David Birch speaks of the three skills: *an entrepreneur needs to know and master: selling, managing people, and creating a new product or service* (Aronsson, 2004, p.290). Thus, being a successful entrepreneur requires being a generalist with the ability to bring a series of disciplines and talents together in a practical manner. Nevertheless, a type of education that is unilaterally and uniquely directed towards the creation of new businesses cannot “produce” generalists or all-rounders. EE should, therefore, be designed to include the broad range of entrepreneurial skills and expertise that define the entrepreneur. Yet, under these conditions, is it still justified to speak really of “entrepreneurship education”?

Reflecting on these considerations, Lautenschläger (2011) provided four recommendations on how future EE at higher education institutions could be designed in order to enable more individuals to develop and implement their ideas.

- a) The educational system should concentrate on nurturing creativity as well as open and critical thinking. Curricula must strengthen problem-recognition and problem-solving activities.
- b) A change is needed in teaching methods. The focus should not only lie on the facilitation of knowledge about business creation but rather on approaching the students with how to acquire such knowledge, and on the training of such abilities.

- c) Entrepreneurial hard facts should rather be covered by standard business management education of the respective university department and not be treated as something outstanding. This is underpinned by the fact that nowadays entrepreneurial thinking and acting is not only expected from a business founder, but also from employees and managers of established businesses, the latter labelled as “intrapreneurship”.
- d) It is necessary to explore the entrepreneurial potential early, namely even before individuals enter the universities. This allows, on the one hand, to direct educational efforts towards those who are willing to start a venture. On the other hand, it permits selective admission for higher entrepreneurial education.

Based on Williams Middleton’s (2010) findings, she proposed that two key “meta” entrepreneurial behaviours need to be developed in growing entrepreneurs, especially those placed in a higher education context: establishing legitimacy and reducing uncertainty and ambiguity. Lautenschläger (2011) recommends strengthening problem identification and solving activities and facilitation of knowledge about business creation rather than providing knowledge that student must memorise.

Consequently, there is a need to produce more research and, more importantly, to identify and agree on the same measures of efficiency of EE in order to overcome the existing deficits in entrepreneurial thinking and acting, which are to a large extent a result of the cultural, social, and environmental conditioning. Reflections on the challenging aspects of entrepreneurship education should be assumed as a contribution to the on-going debate about the sense of state-of-the-art EE and its future role in higher education. In the light of the literature reviewed at this stage, a definition of an appropriate measure for promoting entrepreneurial engagement is necessary. The next sections will synthesise the different findings and positions of the study, accordingly.

## **2.12 Entrepreneurial competencies**

This section provides some viewpoints about entrepreneurship competencies that researchers have produced. Scholars exploring entrepreneurial competencies have shaped a multitude of academically and empirically supported concepts, including human capital (Gimeno, Folta, Cooper, & Woo, 1997; Shane, 2000), social capital and social skills (Aldrich & Zimmer, 1986; Baron & Markman, 2000; Burt, 1992), self-efficacy (Boyd & Vozikis, 1994; Chen et al., 1998; Markman et al., 2002; Scherer et al., 1989) and creativity (Gilad, 1984; Timmons,

1978; Ward, 2004; Whiting, 1988), that have demonstrated a relationship to entrepreneurial activity. Mostly, stronger competencies in these areas are related to increased intention of engaging in entrepreneurial activity and/or venture creation and sustainability (C.F. Markman, 2007). While many specific entrepreneurial competencies have been identified, they appear generally to fall into three major categories: cognitive, social, and action oriented, as described in the coming paragraphs (Boyles, 2012).

### **2.12.1 Social competencies**

Competencies that put the connections between individuals engender significant relationships and networks that impact the intention and success of their participation in entrepreneurial activity (Adler & Kwon, 2002; Aldrich & Zimmer, 1986; Burt, 1992; Nahapiet & Ghoshal, 1998; Shane & Cable, 2002). An entrepreneur's social network and social capital may provide future opportunities and help in giving entrepreneurs access to the resources necessary to start a new venture (Audia & Rider, 2005; Shane & Cable, 2002; Sorenson & Audia, 2000).

Byers et al. (1997) advocate that entrepreneurship education needs to include a better highlighting on social processes and social behaviour. Baron and Markman (2000) mention particular social skills including the ability to accurately assess others, to adapt to different and changing social situations, to initially and consistently show a good impression of self to others, and to successfully persuade others that they argue impact the success of the entrepreneur. Baron and Markman (2000) also argue that these skills are trainable and can be developed by individuals. The communication and collaboration are particularly concerned with the development of these social entrepreneurship competencies. This category emphasises the ability to interact cooperatively to solve problems and create innovations, to read and cope with the emotions of self and others, and to communicate and create meaning through mechanisms (Lemke et al., 2003).

### **2.12.2 Cognitive competencies**

Influential entrepreneurship's theory (e.g., Kirzner, 1979; McClelland, 1967; Schumpeter, 1942, Venkataraman, 2000) and other research (Haynie, Shepherd, Mosakowski, & Early, 2010; Mitchell et al., 2002; Mitchell & Busenitz, 2007; Singh, Baum, & Bird, 2008) have highlighted the notion that entrepreneurs have distinct ways of thinking which increase their likelihood of identifying opportunities and developing new ventures to exploit those

opportunities. Moreover, this “entrepreneurial mind-set” is thought to be not only distinct, but also learnable and able to be developed by cautious practice (Baron & Henry, 2006; Mitchell, 2005). In addition, the distinct ways in which entrepreneurs process information and approach problems contribute to their abilities in opportunity recognition and development and serve as a basis for understanding why only some individuals become entrepreneurs (Allinson, Chell, & Hayes, 2000; Bygrave & Hofer, 1991; Douglas & Shepherd, 1999; Keh, Foo, & Lim, 2002). These ideas are described as “entrepreneurial cognitions” and refer to “the knowledge structures that people use to understand make assessments, judgments, or decisions” (Mitchell et al., 2002, p. 97).

Some studies have generated evidence that actively searching for information is an important factor in the recognition of opportunities by entrepreneurs (Baron, 2006; Fiet et al., 2004; Gilad, Kaish, & Ronen, 1989; Shane, 2003). Within this research, authors note that, to be successful, entrepreneurs must conduct searches systematically (Fiet et al., 2004) and must possess superior search skills to have an advantage over others in opportunity recognition (DeTienne & Chandler, 2004). Information, media, and technology literacy refers to the ability to think and reason logically to solve complex, open-ended problems; a skill set that contributes directly to the ability to conduct searches actively and successfully. The 21<sup>st</sup> century economy is characterised by an overwhelming amount of information, and information literacy is the ability to generate meaning and knowledge from information. In addition, information literacy emphasises the ability to critically evaluate information and distil it down to what is useful and relevant, a key component of successful active search involving the evaluation of identified opportunities (Hills & Shrader, 1998).

Entrepreneurial alertness is another aspect of the entrepreneurial mindset that contributes to opportunity recognition. Introduced by Kirzner (1985), the concept of alertness as a distinguishing cognitive ability of entrepreneurs is predicated on the notion that opportunities are sometimes recognised by individuals who are not actively searching for them, but who have developed an ability to recognise them when they appear (Baron & Henry, 2006; Gilad et al., 1989). The translation of alertness into opportunity requires making connections between seemingly unconnected things and understanding how those connections translate into an opportunity. Baron (2006) argues these kinds of opportunity recognition skills manifest in the individual’s ability to recognise patterns and can be developed by learning to “focus on the most relevant factors and to search for connections between these variables or

changes” (Baron, 2006, p. 116). Pattern recognition and divergent thinking abilities are key elements of the information, media, and technology literacy category (Lemke et al., 2003).

Other entrepreneurial scholars have indicated that keys to alertness lie in individual cognitive abilities of intelligence and creativity (Busenitz, 1996; Shane, 2003). These abilities are argued to give entrepreneurs an advantage in recognising new solutions and imagining new products and services. Creativity and innovation are at the core of the inventive-thinking category and, by definition, involve the act of bringing something new and original into existence. Inventive thinking also requires sound higher order thinking skills, permitting the application of analysis, comparison, inference and interpretation, evaluation, and synthesis to create new solutions to complex problems (Lemke et al., 2003). It is this combination of intelligence and creativity that leads to the ability of entrepreneurs to evaluate multiple ideas and determine the true opportunities (Hills & Shrader, 1998; Keh et al., 2002).

Entrepreneurial cognitions have also demonstrated a positive impact on the intention of an individual to establish an actual venture (Forbes, 1999). Entrepreneurs are thought to develop and apply heuristics in these situations in order to act decisively in the face of uncertainty (Busenitz & Barney, 1997; Tversky & Kahneman, 1974). The information, media, and technology literacy and inventive thinking categories represent the critical need to create such heuristics, by emphasising the critical evaluation of existing information and the application of that evaluation for decision making in creative ways.

### **2.12.3 Action-oriented competencies**

Entrepreneurship simply does not exist without actions on the part of the entrepreneur to manifest and exploit a recognised opportunity (Frese, 2007; Schumpeter, 1935). Frese’s action theory of entrepreneurship describes entrepreneurship as a conscious process of establishing goals, planning for goal achievement, monitoring execution, and adjusting for success (Frese, 2007). In addition, the concepts of initiative, self-management, self-efficacy, and personal responsibility for success have all been associated with entrepreneurial actions and success (Boyd & Vozikis, 1994; Chen et al., 1998; Frese, 2007; Frese & Fay, 2001; Sarasvathy et al., 1999). Moreover, recent research indicates existing businesses are changing their organisational structures to include greater decentralisation, an increased use of self-managed and cross-functional teams, and flatter management structures (Black & Lynch,

2003; Ellis, 2003; Osterman, 2000; Tiernan, Flood, Murphy, & Carroll, 2002) emphasising the importance of individual initiative and accountability for the employee.

Sarasvathy's works provided an interesting concept, namely "effectuation". Sarasvathy's effectual models begin with given means and seek to create new ends using non-predictive strategies. In addition to altering conventional relationships between means and ends and between prediction and control, effectuation rearranges many other traditional relationships such as those between organism and environment, parts and whole, subjective and objective, individual and social, and so on. It makes these relationships a matter of design rather than one of decision.

Other entrepreneurship action-oriented competencies, which are organised around the concepts of drivers of productivity and the autonomy necessary to act, have been identified. These are the development of initiative and self-direction, accountability and responsibility, flexibility and adaptability. Key competency sets include planning skills, the ability to monitor progress and to adapt/alter plans. This category reflects the need for independent motivation, action, and decision-making.

Boyles (2012) developed a pertinent approach for a comprehensive look at the entrepreneurship learning programme and subsequent contributions of courses (modules) toward the overall student learning goals, where he measured the applicability of learning outcome introduced, learning outcome developed, and learning outcome mastered by students (Boyles, 2012, P.56). He suggested that an appropriate evolution for his work would be to create a process and tool through which to assess the outcomes for levels of student mastery. This could include a pre- and post-test on one or more learning outcomes for students at the beginning and end stages of their coursework in entrepreneurship, or an application of rubrics to identify the developmental level of students on each learning outcome.

## **2.13 Synthesis and study positioning**

Earlier studies of entrepreneurship have focused on personal traits, culture, and norms. In the studies of personal traits, it has been difficult to single out the traits that are important for the entrepreneur and to decide on the causal direction between traits and entrepreneurship. The cultural norm approach tends to be deterministic and over-socialised and does not necessarily explain why different people in the same group act differently. In economic theory, it is the profitability and the risk involved that are usually considered. The few economists who have

studied the influence of education settings seem to have represented them in an over-socialised manner.

Partly as a reaction to the personal trait, cultural norm, and the economic perspectives, the practice-based approach has developed as a method of studying entrepreneurship. Practice-based can be defined as a pattern of lasting skills required to act entrepreneurially, and they are important because they are assumed to give access to resources needed for entrepreneurship. The practice-based perspective has, as mentioned, partly developed as a reaction to earlier theories of entrepreneurship but may also be viewed as integrative to these theories. The practice-based perspective fills the holes in the knowledge in earlier theories.

For example, it may be used to explain why people in the same culture and with the same personal traits act differently. The section “The structure of the research” of Chapter One shows that there are several areas where it is necessary to do further research.

**First**, as discussed in previous sections of this chapter, in most of the research on how education settings influence entrepreneurship, the methodology has been to compare entrepreneurs in different development phases. This is a reasonable strategy in early phases of the research process where the measure of success of entrepreneurship education is often new venture creation. In this study we will evaluate the degree of the application of the practice-based approach and the impact on students to think and act entrepreneurially.

As such, entrepreneurship pedagogy frequently focuses on teaching students either the skills or the theories needed to launch a new venture. Yet, this emphasis on teaching skills and theories overlooks the fact that one of the distinguishing features of successful entrepreneurs is they engage in a cognitive approach to problem solving that is different than that of traditional managers. This different cognitive approach is referred to as the entrepreneurial method. This thesis explores whether the effects of the practice-based method can be developed to teach entrepreneurship students the skills necessary to successfully launch a venture.

**Second**, the practice-based approach has been used to study entrepreneurship in a venture accelerator framework that is not necessarily implanted in universities. However, as discussed, in Algeria there has not been any systematic attempt to use the same approach in a university context within a so-called pre-incubation venture accelerator. In order to increase



the generality of the practice-based approach, the degree of application of the Neck, Greene, and Brush (2014) practice-based model within this author's case study will be assessed.

**Third**, as discussed, many different network variables have been tested, but only a few of them from a student-centred perspective (Neck, Greene, and Brush, 2014). For some of the variables, the tests done in more than one study are not clear. As noted above in this sub-chapter, the dependent variable in most tests on the effect of the ecosystem and the strict application of entrepreneurship education process related to variables on entrepreneurship have been entrepreneurial phases. It is therefore necessary to extend the testing on which practice-based elements influence the students and are important for the venture creation of new organisations.

**Fourth**, even though the importance of entrepreneurship has most often been related to behaviour standards, mastery of the venture creation process, and access to financial resources, the impact on students of the practice-based method has not been used as an intervening variable. Therefore, in this study, the practice-based method will be used as an intervening variable between student skill development and venture creation. Also, the path from entrepreneurship education through the practice-based method to venture creation will be compared to the direct link between the practice-based method, as well as venture creation and/or skills that facilitate thinking and acting entrepreneurially.

**Fifth**, given this focus on action learning and its obvious interest to entrepreneurship educators who often focus on teaching practices, it is speculated that students in a free enterprise effort can effectively connect with business leaders and managers.

The action-learning program supports student learning by reflecting on real life situations and solving actual organisational problems in teams (McLaughlin and Thorpe, 1993; Eden and Huxman, 1996).

The present research is a longitudinal investigation, over three years, into the lasting career benefits of FIE education at university. The study is done using the spectrum of action learning from the reflection perspective and using practice-based approaches from the five principals of practice.

In the coming section, a reflection on the literature at this level of the study as needed by action research by revisiting the initial research questions is provided.

## **2.14 Reflection on research questions**

Building upon a view of the impact of entrepreneurship teaching on students as developed in relation to both the students' perceptions and their environment, and through a process of creating a new venture, entrepreneurial education development was explored initially in this research through three preliminary research questions:

RQ1: Which behaviours or skills are learned and contribute immediately to the process of creating a new venture?

RQ2: How can entrepreneurship programs contents facilitate the development of entrepreneurial behaviour and skills?

RQ3: How can interaction between the students and teachers facilitate the development of entrepreneurial behaviour and skills?

The aim in the progress of the thesis at this point was to understand the existing approaches of facilitating the development of entrepreneurship behaviours and skills. In the first place, how those behaviours and skills could be developed needed to be recognised, taking into consideration the influence of the environment. However, understanding which behaviours and skills can be developed with some tested models was an unavoidable parameter to legitimate the case study later on, as described in the coming chapter.

Based on the literature review, and building from the different studied perspectives, an interesting definition of an entrepreneurial behaviour could be the observable sets of actions of an individual occurring over time which result in the creation of a new venture (Williams Middleton, 2010). This is based on the argument that the actions could be understood as behaviours as they are observable, conducted by individuals over time, and in a process (Liao and Welsch, 2008).

After this synthesis of the issues in entrepreneurship literature, a reflection on the materials has led to a reframing of the research questions. The process of reflection is integral to action research and is emphasised in the literature (Avison et al., 1999; Baskerville & Myers, 2004; Coghlan & Brannick, 2005; Davison et al., 2004). Braa and Vidgen (2000) make the salient point that, in the course of research, in addition to learning from the research content, there should also be learning about the process of inquiry (Costello, Conboy et Donnellan, 2015).

The process of reflection was used in this action research study. In relation to this, Coghlan and Brannick (2005), drawing from antecedent publications by authors such as Argyris and Mezirow (1985), propose that this “reflection on reflection” results in “learning about learning”. They call this process meta-learning, which consists of three types of critical reflection:

- **Content reflection:** thinking about the issues and what is happening,
- **Process reflection:** thinking about strategies, procedures and how things are being done,
- **Premise reflection:** critiquing underlying assumptions and perspectives.

Coghlan and Brannick (2005) then superimpose these three constructs on their version of the action research cycle to develop a meta-cycle of inquiry:

- **The *content* of what is diagnosed**, planned, acted-on and evaluated is studied,
- **The *process* of how a diagnosis is undertaken**, how action planning flows from that diagnosis and is conducted, how closely the implemented actions follow the stated plans and how evaluation is conducted are critical foci for inquiry,
- **The *premise* reflection consists of an inquiry into the unstated**, and often nonconscious, underlying assumptions, which govern attitudes and behaviour.

According to those reflection principals, the initial research questions have been modified as follows:

- ✓ RQ1: Which behaviours or skills are learned and contribute immediately to the process of creating a new venture?



- **Reflected RQ1: Which skills and competencies must be targeted in entrepreneurship education?**

- ✓ RQ2: How can entrepreneurship programs contents facilitate the development of entrepreneurial behaviour and skills?



- **Reflected RQ2: How could action learning and practice-based learning be combined to elaborate a more efficient learning model?**

- ✓ RQ3: How can interaction between the students and teachers facilitate the development of entrepreneurial behaviour and skills?



- Reflected RQ3: What are the profiles and roles of role-sets (teams) in charge of the entrepreneurship education program delivery?**

Entrepreneurship education is a complex phenomenon that has yet to be fully understood, especially regarding its contextual and societal influences and its methodical application within an educational context. This research does not claim to have found the solution for the development of a unifying theoretical framework for entrepreneurship education. However, it proposes the application of existing methods that have provided tangible positive results in terms of entrepreneurship student competencies. From a research perspective, the main questions we required to find answers for were:

1. Which competencies do we need to teach students to be successful?
2. How can we best teach them?
3. How can we create a setting in which students learn to become entrepreneurial and innovative?

In summary, this thesis draws attention to individual competencies for innovative and entrepreneurial behaviour, the pedagogical approach in terms of program content, and the teaching staff that should be assembled to allow students to get the most out of their potential. When researching the impact of the closed ecosystem in entrepreneurship education,

associated student learning and entrepreneurial behaviour evolve to take into consideration the current disconnect between theory development (from a research perspective) and practice (from an educational perspective) which hinders the continuous improvement and innovation of the entrepreneurial education landscape, by ignoring the reciprocal relationship among environmental, cognitive, and behavioural factors. The domain of entrepreneurship needs newer and better-calibrated methods, a notion emphasised by Baumol: *Entrepreneurship must be viewed as a multifaceted phenomenon that will differ depending on the context, its level of innovation, and its impact on society* (Griffiths et al. 2012, p. 623). As proposed in this research, a social cognitive lens and action research framework may be the catalyst that definitively establishes entrepreneurship education and its associated methods, as on-going practices in both academic and non-academic learning environments across the campus, through a conceptual model.

The next chapter is about methodology, trying to explain which approach will be undertaken herein to analyse and address the weak points and major issues regardless of the efficiency of an entrepreneurship education program in Algeria, mentioning FIE through the identified filters in the literature review.

## **Chapter 3. Methodology**

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### **3.1 Introduction**

One difficulty that researchers face is the selection of the methodological approach. There are assumptions and restrictions as to the choice of each method used and these must be taken into consideration. After research gaps are identified in the literature, and the questions of the study are developed, the researcher then analyses possible approaches, selecting the one that is most appropriate, useful, and effective to address the study question at hand; in other words, selecting a method that addresses it in order to propose/direct solutions. Research in entrepreneurship education is fragmented both conceptually and methodologically. Findings suggest that the methods applied in entrepreneurship education research cluster in two groups: first, quantitative studies of the extent and effect of entrepreneurship education; and second, qualitative single case studies of different courses and programmes. Benefits and drawbacks haunt both clusters. Quantitative studies bring objectivity, comparability, and generalisability, but show limited appreciation of the heterogeneity of the education they seek to measure. Qualitative single case studies are ripe with contextually sensitive descriptions and best pedagogical practices, even if they suffer from limited comparability and generalisability as well as severe biases of teacher-researcher conflation. This allows, for the purposes of this thesis, a choice of the appropriate methodology according to context, the present chapter being an introduction on action research and case study, which represents mixed methods that aim, hopefully, to improve the degree of generalisation.

The chapter starts by addressing the methodological choices of the intended research and thesis summary, opening first with presenting the intrinsic case chosen for study. This is followed by a description of the specific methodology of the appended materials of studied entrepreneurship programme and synthesised in the previous chapter. The chapter concludes by addressing implications of the choices made and aims to provide arguments and justifications about the chosen methodology and methods regardless of the complexity of the studied entrepreneurship education phenomenon. This chapter emphasises on, first, a presentation of the general research approach, then a section is dedicated to familiarisation with the action research and case study methodology. The third section is about the presentation of our case study and how it is articulated with the studied subjects. The fourth section emphasises the action research process applied to the studied situations, and the fifth section is about the research design, speaking about its methods and processes of data

collection as well as processes of analysing the data. Finally, the conclusion is a reflection on strengths of the research and its eventual limitations.

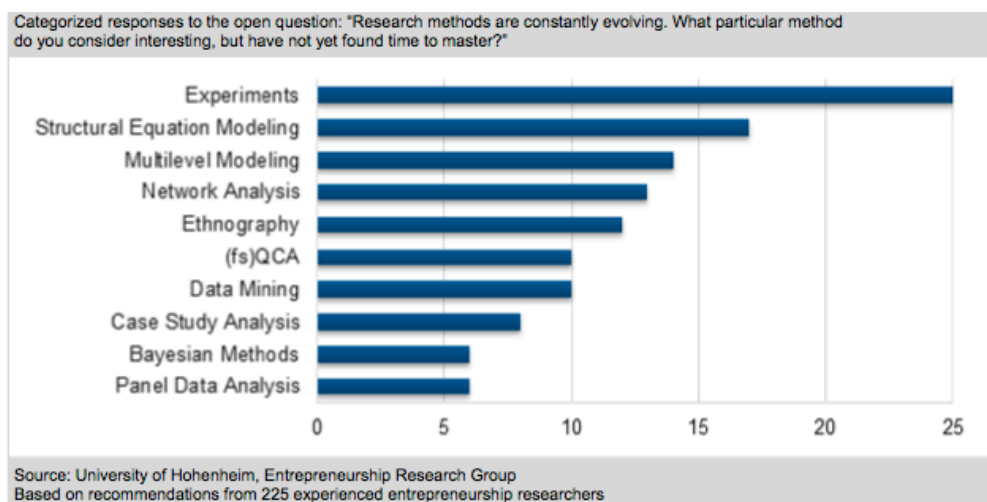
### **3.2 General research approach**

Exploration of interaction requires more in-depth and engaged research than is generally conducted when investigating entrepreneurial activity (Gartner and Carter, 2003). As the intent of the research is not to explain behaviour but to understand behaviour as it is being developed, an interpretative approach is taken (Bryman and Bell, 2007, p 26-27). The ontological and epistemological foundations of this approach in organisational research, as outlined by Burrell and Morgan (1979), build from a subjective understanding of an individual's social experience due to the way in which that individual makes meaning of the social setting. *"In order to investigate the development of a phenomenon, it is important to gather evidence within the context of the phenomenon where it is hypothesized that the development is taking place, based on the resulting outcomes"* (Middleton, 2010, p 44). Action research (Coghlan and Brannick, 2005, Reason and Bradbury, 2008) is conducted based on the ability to immerse in the empirical setting, both in the role of a researcher and an actor in a professional capacity, acting in concert with others. As an action researcher in this thesis, the researcher has engaged in multiple annual cycles, allowing implementing developments and changes every year.

The methodology chosen involves in-depth longitudinal study (Flick, 2006) of not only the actors developing entrepreneurial behaviour and the entrepreneurship students, but also the surrounding actors (including a more specifically defined role-set). The research is qualitative, building mainly upon more than four years of observation and embeddedness in an empirical setting determined to engage in high-growth potential venture creation, the FIE. Based on some quantitative research (see Chapter One) that demonstrated the lack in entrepreneurship education efficiency, the action research approach to the basic case is complemented by a participatory observation approach, which is compared with FIE settings and the method of practice-based approach settings. Historical, observational, and interview methods are blended when gathering and interpreting evidence from segments of documents and descriptions (Hammersley, 1990). Data collection methods include various types of interviews, documentation, participant observation, and archival material, and are discussed relative to the practice-based approach.

The ten most mentioned research methods with potential in 2018 are presented in Figure 3.1,

according to a study done at the University of Hoheheim. When the study sorted the answers to the method question according to paradigms, researchers noted the presence of methods from both the qualitative and quantitative paradigms (Kuckertz and Prochotta, 2018). Some methods that receive only a few nominations, and are therefore not included in the top ten research methods for 2018, address other methods that may not be clearly assigned to a particular paradigm (e.g., neuroscience methods such as functional magnetic resonance imaging (fMRI), positron emission tomography (PET), and utilising electroencephalograms (EEG). Indeed, Aberkane (2016) argues that our education system reached its limitations in terms of productivity. For example, we need the same number of hours to learn a language or math, and neuroscience is a means to increase this learning productivity, which he calls the “future of education with neuroscience”. Indeed, Aberkane (2016) speaks about neuroscience using the concept of “neuro-ergonomic” education, where he puts game playing as one of the best means to maximise learning. This is an interesting point of view because of the clear link to the practice-based approach where the practice of play is one of the conditions for the acquisition of entrepreneurship competencies (Neck, Green, and Brush, 2014).



***Figure 3.1. Most promising methods in entrepreneurship research (Kuckertz and Prochotta, 2018)***

Figure 3.1 illustrates that experimental designs are the most frequently mentioned research methods that reflect researchers' current interests. A closer look at the answers associated with the top three methods reveals that the respondents consider both laboratory and field experiments relevant. It is important to mention that Adorno (2002) suggests that the metaphors of experimentation and the laboratory are applicable when positioning action



research vis-à-vis more conventional business school research. He says: “*When action researchers intervene within organizations, the activities are always experimental in nature, i.e., they can never be fully predicted or anticipated, but are initial steps in an emergent process of organizational change*” (Adorno, 2002).

The thesis uses multiple levels of analysis, both micro and aggregate (Davidsson and Wiklund, 2001). Different levels are specifically addressed through the method of the practice-based approach. The process of FIE and the empirical observations and questionnaires are done with students, while contributions from the method (and the analysis perspective) are combined in the thesis. Thus, the systems perspective taken in this thesis intends to investigate development of entrepreneurial competencies in relation to a conglomerate of interacting, and influencing factors from multiple levels.

### **3.3 Action research and case study methodology**

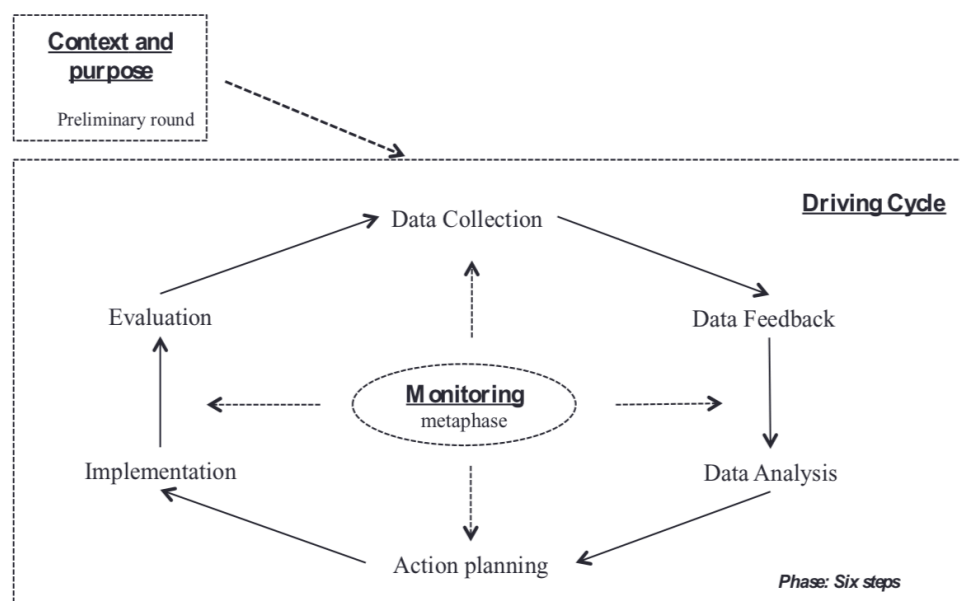
The research methodologies selected for this study were case study, action research and, with very little contribution, design science research. Case study and action research methodologies are based essentially on the paradigm of traditional sciences. The main objectives of research carried out under this paradigm are to explore, describe, explain and, if possible, predict phenomena or existing systems (Romme, 2003; Van Aken, 2004). On the other hand, design science research is a method based on the design science paradigm: a science that deals with the design of new systems or the solution of real and relevant problems (Romme, 2003; Van Aken, 2004).

### **3.4 Action research approach**

Action research is an empirical type of work, whose conception and construction should take place in close connection with the resolution of a collective problem in which researchers and participants, as representatives of the situation researched, are involved in a cooperative and participatory way (Thiollent, 2009). In general, it aims to address a research problem in an organisation (Eden & Huxham, 1996). In addition, researchers working with this approach do not deal with hypotheses, but with research topics and organisational challenges (Checkland & Holwell, 1998).

Expanding these statements, Coughlan and Coughlan (2002) add that action research has the following characteristics: “research in action”, rather than “research on action”, is

participatory and simultaneous to the action and it results in a sequence of events and in an approach in search of solutions to a problem. It is also important to note that the characteristics identified above should be considered from the conception of the research; that is, it should be planned as such. In this sense, action research comprises three main phases: preliminary, conduction cycle, and metaphase, illustrated in Figure 3.2. As can be noticed, the research conduction cycle comprises six main stages, while the metaphase is present in each of these six stages. These phases are described below.



***Figure 3.2. The action research cycle***

**Source:** adapted from “Action Research for Operations Management” by P. Coughlan and D. Coughlan, 2002, *International Journal of Operations & Production Management*.

As illustrated in Figure 3.2, the overall action research cycle comprises the description of the phases defined by Coughlan and Coughlan (2002). The first phase (preliminary study) includes the understanding of the context in which the research will be performed (object of analysis), as well as the purpose of carrying out the work. This phase also involves the establishment of justifications for the required action (why actions should be carried out) and justifications for the research itself (why this research should be conducted, what are the issues to be addressed, and what contribution will be generated).

In this research case, the understanding of the context was done through observations in the field about the inefficiency of the FIE related to venture creation by the students. At this stage

it was just pre-understandings, consequently the need to conduct such research was established as a response to studying entrepreneurship from the perspective of education, demonstrating that there is a relationship between the process of entrepreneurship learning and venture creation.

The second phase (conduction cycle through six stages) begins with data collection (diagnosis and/or data collected when the research is already in process), data feedback (for those involved with the research), analysis of such data (with those involved in research), action planning (definition of interventions to be made), action implementation (putting into practice what was planned), and evaluation (verifying whether implementation results have been unsuccessful or not, or have produced the desired effects), returning to new data collection (if necessary) and thereby closing the loop.

In the case of this research, the second phase is represented by what was completed by investigations on the literature review about research in Algerian contexts, which provided a precious source of data about the context that inevitably will influence those involved in the research. Feedback was given to all the stakeholders about the lack in curriculum efficiency. Analysis of the causes of this lack in efficiency related to the programme results was done. This was followed by an action plan, and actions, such as the adjustment of student acceptance criteria, structure of role-sets and volume of theoretical courses, were implemented and evaluated accordingly.

It is important to mention that these cycles are constant and sequential, i.e., they are continuous for as long as needed. Another observation is that there may be a broader cycle (for the research as a whole) and smaller cycles for specific parts of the work (Dresch, Lacerda et Miguel, 2015). In this thesis three cycles were done—one cycle each year.

The third (meta) phase (monitoring) includes a verification of each of the six previous stages in order to identify what was learned from carrying out the action research. This monitoring should be presented in different ways, according to each stage of the conduction cycle. From an organisational point of view, there may be the establishment of a directing group while the action research is being conducted, in this case with great interest in the practical results of the work (Coughlan & Coughlan, 2002).

In this research, the third phase of monitoring concerned the learning, and two types of practical learning were identified. The first type is about the teaching content and organisation

of role-sets and the other type of learning concerns the theoretical inputs that were generated by literature review and more specifically the reflection upon the preliminary research questions.

As research based on an interpretative approach requires that understanding be based on the experiences of the individuals working within the social interactions, the main method utilised is action research, particularly stemming from the Lewinian understanding. Lewin is said to view action research as part of a cyclical process involving social planning, investigation (evaluation of action informing next steps), review, and iteration (Adelman, 1993, Bradbury et al., 2008). Lewin's understanding of action research is utilised, as this is seen to align with the theoretical foundation used in the thesis regarding social learning theory and behavioural development as influenced by one's environment (Lewin, 1951).

Action research provides knowledge of living and evolving processes rooted in everyday experiences (Reason and Bradbury, 2001). The methodology is most appropriate to studies involving research studying phenomenon concerned with human interaction from an insider's perspective, observed from within an everyday life setting. This is assuming that the researcher is able to access such a setting, and that it is of a certain size and scope so that the phenomenon can be studied as a case using qualitative data collected by direct observation and other field setting methods (Jorgensen, 1989). A particular specialisation of action research is insider action research.

Coghlan (2007) and Roth et al. (2007) refer to research conducted on activities within a setting as they take place by a researcher who is part of the setting in which the action has taken place (Coghlan and Brannick, 2005). This type of approach is utilised in order to capture the in-depth dynamic of the object of study not observed by outside researchers. Insider status provides access to the broad spectrum of information that—due to sensitivity, degree of trust, articulation, and other environmentally based challenges—outsiders would not have access to, thus decreasing reliance upon espoused theories (Argyris, 1991).

For the studies, in addition to investigating the research case of the FIE, participatory observation has been the main methodology utilised. Participatory observation is understood as a process with three progressive phases: descriptive observation, focused observation, and selective observation (Spradley, 1980).

Each allows for deeper access, insight, and understanding into the phenomenon studied.

Raymond Gold (1958) classifies the role of “participant-as-observer” as a complete participant in the social setting, regularly engaging and interacting in daily activities, but where the members of the setting are aware that the researcher is conducting research and thus that they are being observed for research purposes. The details of the participatory observation of FIE process delivery are discussed in the coming chapter.

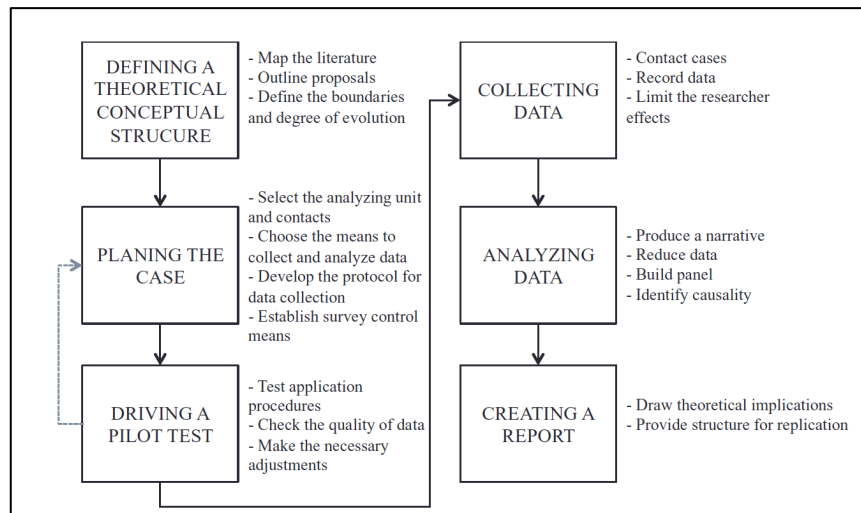
### **3.5 Case study method**

The use of the qualitative case study (QCS) approach by researchers has increased during the past decade (Anthony & Jack, 2009). Researchers in support of the methodology used have generally cited the research conducted by Robert Yin (2003, 2009) and Robert Stake (1994, 1995, 2005). They do, however, have differing philosophical orientations, and the simultaneous application and citation of their work seem to overlook these philosophical perspectives. This has compromised the credibility of the work conducted.

Yin’s work, with its post-positivist perspective, has been most represented, and Stake’s constructivist approach less so. Creswell (2015) described the QCS approach as an exploration of a “bounded system”, or case, over time, through detailed, in-depth data collection involving multiple sources of information, each with its own sampling, data collection, and analysis strategies. The outcome is a case description made up of case-based themes.

Researchers have characterised the QCS approach as a contextually based tradition. It is difficult to separate the case from the context in which it occurs. According to Creswell, the type of case study is determined by the size of the bounded case or the intent of the analysis. Researchers have used the QCS across numerous disciplines to contribute to the knowledge of individuals, groups, processes, and relationships (Yin, 2003, 2009). As Stake (1995, 2005), Merriam (1988), and Yin (2009) have contended, the case study approach allows for a holistic understanding of a phenomenon within real-life contexts from the perspective of those involved. Stake has depicted the case study approach as possessing the ability to grasp the intricacies of a phenomenon. Case studies have been described as best suited to research that asks “how” and “why” questions (Stake, 2005; Yin, 2003).

A proposal of content and sequence for carrying out a case study can be seen in Figure 3.3. Next, stages are described in more detail, based on Miguel (2007).



***Figure 3.3. Carrying out a Case Study***

**Source: “Estudo de Casona Engenharia de Produção: Estruturação e Recomendações parasua Condução,” by P. A. C. Miguel, 2007, Produção,**

Reference cartography of the literature on the subject should be developed, even though reflection and adjustment will be needed for each cycle in the situation of an action research, as in this research. In addition, based on the literature review, it is possible to identify gaps to justify research, as well as to extract the following constructs or elements from the literature that represent a concept to be verified in the field. Based on these constructs, the propositions of the work and its objectives are defined (Dresh, Lacerda, and Miguel, 2015).

It is necessary to indicate the analysis’ unit, i.e., of the case(s), at first the number of single or multiple cases and then elaborate a plan (Yin, 2013). From case selection on, the methods and techniques for data collection and analysis should be established. In data collection, multiple sources of evidence (interviews, document analysis, *in loco* visits, among others) should be used. As for this research, the documentation produced by FIE and used by the academic staff, in addition to the interviews by questionnaire that will be done with the different students groups each year, will be analysed. The analysis unit of our case is single with multiple levels of analysis.

After the techniques for data collection are chosen, a research protocol should be developed. Data analysis should also be pre-planned and clearly fixed in the research. In this case, there are two protocols; the first one concerns the yearly cycles of reflections, which are done with the academic staff by email and through group discussions, and the second is the protocol of questionnaire administration, which will be presented in detail in section 3.7.1 “Methods and

processes of data collection”.

Constructed on the collected data, considering the multiple sources of evidence, the researcher must then produce an overall case narrative. In general, it is necessary to carry out data reduction, so that only what is essential and has close connections with the objectives and constructs of the research is included in the analysis. Interview recordings are transcribed in full, respectively, following each cycle of each year, and the raw data is presented in the appendix. Secondary data, referring to the characterisation of the object of analysis, which in this case are in the FIE manual presented in the appendix, will also be used. This research takes into account that results should closely refer to the theory, being careful not to adjust the theory to results and evidence, but the opposite; that is, results and evidence should be associated with the theory (Dresch, Lacerda et Miguel, 2015). The next section presents in detail the research case study of this thesis.

### **3.6 Research case study**

The first choice is which core empirical setting is to be studied. The collective research of the main empirical setting can be taken as a basic case, as the researcher attempts to gain a better understanding of a specific phenomenon (Stake, 2005) in a unique programme, called “Formation Innovation Entrepreneur” (FIE) provided by INSA (*Institut national des sciences appliqués*) located in Lyon, France) in several Algerian universities (EHEC, ENSTP, ENSSMAL, ESI, ENP, ENSA), with a focus on the EHEC (*Ecole des Hautes Etudes Commerciales*) landscape. This case is intended to be exemplary, potentially contributing to a wider understanding of entrepreneurial skill development when placed in contrast to other similar university landscapes or alternative environmental settings.

Determination of the main empirical setting, the FIE programme, as representative of an on-going entrepreneurial process, is based on delivered results assessed relative to the definition of entrepreneurship as a method (practice-based approach) of emergent skills that help to think and act entrepreneurially (Neck, Greene, and Brush, 2014)—a result of which is the creation of new ventures.

Since 2011, students in the final year of a bachelor’s degree have been selected to be in this special course instead of making a final year thesis project. The students are placed in a pre-incubation period for their bachelor’s. They are communicated with as emerging entrepreneurs and enter an entrepreneurial process by engaging in the creation of a venture.

Evaluations were made at the end of each set of around 30 students.

The format of the incubation period allows for involvement and investigation into multiple cycles of essentially the “same” process and “same” environment, recognising that the process is never exactly the same. Each cycle involves individuals new to a particular cycle, and ideas upon which the ventures are based are almost always new to any particular cycle.

Official protocols from the process, called “projects reviews” are done every two months, with personal observations and notes taken during these events. Student and programme evaluations are done through staff meetings and occur at the end of every programme, generally in July. Weekly activities of the FIE also include both planned and impromptu events specific to the venture creation process of the emerging entrepreneurs, at times also involving members of the role-sets.

### **3.7 Research design**

#### **3.7.1 Methods and processes of data collection**

For this case study, the author used three methods. The first method is participatory observation of the students where they are working on their projects in teams. The second method is survey through questionnaire addressed to samples of students at the beginning, mid-curriculum, and two years after student graduation. One sample of students each year over the course of three years is checked, knowing that for this method the researcher followed one group of students, respectively, for each year according to programme settings imposed by the programme structure. Accordingly, the third method is documenting the FIE guidebook and comparing it with findings of literature review in terms of best EE practices, such as action learning and the practice-based approach.

In this action research, two reflections were made at different stages. The first reflection was made after year one (2014), and in terms of research design, the researcher has adjusted some questions of the questionnaire (see Table 3.1). The second reflection involved adding the documentation method of crosschecking the contents of FIE (case study programme) with the best practices generated along the research.

The first took place in the process of selecting the students who would participate in the programme. These selections were made in the context of 15-minute project pitches. For these pitches, the author and other members of the evaluation committee were responsible for



challenging the candidates through questions or orientations.

The second context of participatory observations involved providing workshops, giving lectures in different modules and, more importantly, preparing project reviews. Students were asked every two months to present the progress of their venture project to the evaluation committee, and again author's observations were transcribed according to his evaluations of student deliverables like exercises or case studies.

The third context of participatory observation took place in the project review sessions, where the researcher was also in charge of challenging the students on some aspects of their projects and curriculum.

Questionnaires were distributed to three respective samples of students of three respective years: 2014, 2015 and 2016. The researcher asked the students to explain the questions and fill in the answers, giving them a 24-hour deadline to respond. The questions asked related to the different components of their learning experience from the mentioned systemic approach (Chapter Four) and the design of questionnaires that were made for the three different stages of the programme. The sampling details of the research are presented in Table 3.1.

**Table 3.1. *Research sampling***

Year	Total number of candidates observed in project pitches	Number of candidates in the studied sample enrolled in the FIE program	Number of students in the studied sample who studied in in-depth action research method	Curriculum and research stages	Asked questions
2014	30	16	5	Beginning of the curriculum	<p>What do you expect from this programme?</p> <p>What skills do you think you will master by the end of the programme?</p> <p>What difficulties do you think you will face during the programme?</p>
				Mid curriculum	<p>Has the programme so far met your expectations?</p> <p>What skills did you learn so far?</p> <p>What difficulties did you face so far?</p> <p>What unexpected results did you get so far?</p>
				Two years after graduation	<p>Did you succeed in creating your venture?</p> <p>If Yes:</p> <p>What are the skills that contributed to this success?</p> <p>What practices of the programme did the most to contribute to this success?</p> <p>What was the contribution of the teaching staff in terms of knowledge and know how?</p>

					does not support venture creation?
				<b>Reflection N°1</b>	<b>Improve student selection so that expectation must be related only to venture creation.</b>
<b>2015</b>	<b>60</b>	<b>19</b>	<b>5</b>	Beginning of the curriculum	<p>What is its maturity stage of your venture idea? *</p> <p>Are your expectations of the programme more related to skills acquisition or venture project technical support? *</p> <p>What skills do you think you will master by the end of the programme?*</p> <p>What difficulties do you think you will face during the programme?</p>
				Mid curriculum	<p>Has the programme so far met your expectations?</p> <p>What skills did you learn so far?</p> <p>What difficulties did you face so far?</p> <p>What unexpected results did you get so far?</p>
				Two years after graduation	<p>Did you succeed in creating your venture?</p> <p>If Yes:</p> <p>What are the skills that contributed to this success?</p> <p>What practices of the programme did the most to contribute to this success?</p> <p>What is the contribution of the teaching staff in terms of knowledge and know how?</p> <p>What are practices of the programme that still are still useful for you in your daily life?</p> <p>From your point of view, what is the major practice of the programme that does not support venture creation?</p>
				<b>Reflection N°2</b>	<b>Integrate more mentoring and lectures by entrepreneurs sharing their</b>

					<b>experiences.</b>
<b>2016</b>	<b>50</b>	<b>14</b>	<b>5</b>	Beginning of the curriculum	<p>What is the maturity stage of your venture idea? *</p> <p>Are your expectations of the programme more related to skills acquisition or venture project technical support? (Integrated after reflection N°1)</p> <p>What skills do you think you will master by the end of the programme?</p> <p>What difficulties do you think you will face during the programme?</p>
				Mid curriculum	<p>Has the programme so far met your expectations?</p> <p>What skills did you learn so far?</p> <p>What difficulties did you face so far?</p> <p>What unexpected results did you get so far?</p>
				Two years after graduation	<p>Did you succeed in creating your venture?</p> <p>If Yes:</p> <p>What are the skills that contributed to this success?</p> <p>What practices of the programme did the most to contribute to this success?</p> <p>What is the contribution of the teaching staff in terms of knowledge and know how?</p> <p>What are practices of the programme that are still useful for you in your daily life?</p> <p>From your point of view, what is a major practice of the programme that does not support venture creation?</p> <p>What did you learn form mentoring sessions and entrepreneurs' lectures **</p>

\*: Questions integrated after reflection N°1.

\*\*: Question integrated after reflection N°2.

Collection of data was made for the third method of documentation by reading and crosschecking with best practices of literature review at three levels:

- **Crosscheck one: Learning Process (inputs and outputs),**
- **Crosscheck two: Modules (Teaching contents and materials),**
- **Crosscheck three: Evaluations settings (What is evaluated and how?).**

### 3.7.2 Processes of analysing the data

The first level of analysis of data is based on the degree of matching of studies generated by questionnaires compared to the measures targeted by the FIE project (Chapter 3), namely:

- Attitudes and behaviours targeted by FIE:

At the individual level: creativity, accountability, self-confidence, tenacity, enthusiasm and humility.

At the level of relationship with others: solidarity, sense of responsibility, leadership and conviviality.

- Skills and competencies targeted by FIE (presented in Table 3.2):

**Table 3.2. *Skills and competencies targeted by FIE***

<b>Modules</b>	<b>Targeted skills and competencies</b>
<b>Innovation and strategy</b>	Know how to construct a business model based on it and understand the impact of strategic decisions
<b>Project initiation and management</b>	Master the use of project management tools and construct a project
<b>Financial management</b>	Know how to elaborate a financial plan and negotiate with banks
<b>Market access</b>	Master the tools for market studies and validate the identified market
<b>Entrepreneurship behaviour</b>	Creativity, accountability, self-confidence, tenacity, enthusiasm, humility, solidarity, sense of responsibility, teamwork and conviviality
<b>Legal environment</b>	Know how to choose the right legal status of the venture, understand responsibilities and rights in terms of contractual law (commercial or employment laws) as well as in intellectual property

The second level of analysis concerns the matching of FIE teaching models, which represents a secondary data source, with the model of Neck and Greene (2011) as a method (see Table 3.3).

**Table 3.3. *Matching of the teaching model targeted by FIE and the Neck and Greene model***

<b>Component of FIE teaching model</b>	<b>Yes, it matches</b>	<b>No, it doesn't match</b>	<b>Partly matches</b>
<b>A set of practice</b>			
<b>Phases of learning</b>			
<b>Iterative</b>			
<b>Creative</b>			
<b>Action focus</b>			
<b>Investment for learning</b>			
<b>Collaborative</b>			

The third level of analysis concerns the matching types of practice of entrepreneurship education in the FIE model with the Neck and Greene (2014) model (see Table 3.4). A focus is done on action learning EE in terms of reflection, which the model of Neck and Green already integrates.

**Table 3.4. *Matching practices occurring in the FIE and Neck and Greene model***

<b>Component of practice in FIE education model</b>	<b>Yes, matches</b>	<b>No, it doesn't match</b>	<b>Partly matches</b>
<b>Practice of creation</b>			
<b>Practice of experimentation</b>			
<b>Practice of play</b>			
<b>Practice of empathy</b>			
<b>Practice of reflection</b>			

### 3.7.3 Methodological considerations

This action research mixed with case study offered a means of investigating a complex social phenomenon, which is entrepreneurship education consisting of multiple variables of potential importance. Anchored in the real-life situation of FIE at EHEC, this case study has resulted in a rich and holistic account of the phenomenon of entrepreneurship learning. It has offered insights and clarified meanings that relates to concrete experiences. Hence, this case study mixed with action research contributed to advancing the knowledge base. It was particularly appealing to be a part of the field's processes, problems, and an entire learning programme which permitted examination that brought understanding, and that in turn can affect and perhaps even improve practice. Case study has proven particularly useful for studying educational innovations, evaluating programs, and informing policy (Flyvbjerg, 2006).

While the core empirical setting is a select FIE at EHEC Algiers, this entrepreneurship programme is placed in comparison with investigation into the practice-based approach of Neck, Greene, and Brush (2014), intending to provide a basis for comparison and some generalisation. Recognising and referring to previous independently conducted research on the same environment, particularly in reference to a common factor (entrepreneurial education), allows for testing of general concepts brought forward in previous research, as well as testing through investigation of the “same” object of study, thus allowing for alternative perspectives. The colourful description in a case study can create an image: *“A vivid portrait of excellent teaching, for example--can become a prototype that can be used in the education of teachers or for the appraisal of teaching”* (Eisner, 1991, p. 199).

Within the FIE, respondent data is also placed in perspective through the integration of interpretations from students themselves as actors in the same environment and process, where observed data also can be questioned relative to documentation, thus increasing or correcting the level of reliability of the initial data.

In hindsight, if the author were to conduct the research again, he would include more quantitative or outcome-driven research to complement the qualitative interpretative research and event-driven research. However, this choice was made to counter the problems encountered in the large-scale studies due to broad and heterogeneous data. The defining



criteria of the university landscape studied are relatively specific, dealing mainly with knowledge and/or technology-based opportunities and university infrastructure that support the mission of utilisation of university-based research, including commercial methods. Clearly defined criteria may enable better understanding of the phenomenon of facilitating entrepreneurial behaviour development, which can then be tested and compared across other research and development settings.

The empirical limitations of the thesis build upon the empirical background chosen; consequently, the university as a single case and as the empirical landscape in which the development of entrepreneurial behaviour can be investigated potentially limits the applicability of the conceptual findings towards other settings, such as the general population or community settings, in addition to the bias in terms of data interpretations, which could be generated from the action research and participatory observations. Further, Erickson (1986) argues that since the general lies in the particular, what we learn in a particular case can be transferred to similar situations. It is the reader, not the researcher, who determines what can apply to his or her context. Stake (2005, p. 455) explains how this knowledge transfer works: *“case researchers will, like others, pass along to readers some of their personal meanings of events and relationships--and fail to pass along others. They know that the reader, too, will add and subtract, invent and shape--reconstructing the knowledge in ways that leave it...more likely to be personally useful”*.

This action research case study focuses on a single unit, a single instance, and the issue of generalisability reveals to be critical. However, much can be learned from a particular case. Readers can learn vicariously from an encounter with the case through the researcher's narrative description (Stake, 2005).

However, the level of fragmentation in the field was significant enough to require explorative research to establish richer explanations, of how behaviour can be understood, developed, and the development of behaviour facilitated. The research could have also been conducted in a way to more concretely illustrate the interactions of the role-sets with students in the environment. The researcher would also have utilised the cyclicity of the venture creation periods to a greater extent in order to draw comparisons of venture teams and role-sets from one year to the next. This could have potentially provided insight into various factors impacting the phenomena that are only intrinsically understood.

### **3.7.4 Ethics**

Research is necessarily a reflective enterprise that involves consideration of research ethics. Throughout this research, the author has frequently considered questions on ethics, especially being an action researcher, where establishing authentic collaboration with others invested in constructing knowledge valued by various communities is a fundamental consideration, and that is generative for the community from which it is derived (Herr & Anderson, 2015). Certainly, it is the responsibility of the researcher to act in ways that are acceptable, taking into account the research goals, the situation in which the research is carried out, and the values and interests of the people involved (Hammersley & Atkinson, 1995). This research, first and foremost, involved assuring that informed consent was obtained from the students who would act as participants and contribute to the research, and from another side, guaranteeing to the university and pedagogical executives that the framework would be respected from a pedagogical point of view, even if discrepancies were noticed. In a higher education venue, there are of course issues of influence and of information flow between different groups that must be reflected on. The researcher decided that he would not pass on any information between the teachers and students. Interviews were confidential, and what the author learnt through his participation with the students, he would not share with the teachers. Hence, the researcher was conscious of the importance of not becoming a mediator between these two groups of participants. Moreover, during conflicts in the student work group, the researcher did his best not to meddle or take sides, but instead made efforts to orient students toward asking questions and reflecting.

### **3.7.5 Reflection on research process**

Spending four years in the core empirical setting not only allows for continuity in observation of a series of emerging entrepreneurs, their teams, and their role-sets, as mentioned above, but also allows for gaining experiential knowledge and understanding of the structures, norms and routines that govern or influence the emerging entrepreneurs, teams, their role-sets, and associated factors. A potential limitation of this closeness is a risk of bias due to losing the ability to objectively understand assumptions (Coghlan and Brannick, 2005).

The researcher can be challenged to gain distance from the empirical setting and can feel an obligation, as a member, to support the image of the setting. However, this is a weakness if the research is placed in comparison with objectivist research where the intent is to

experiment in order to establish explanations (Shani et al., 2008), as compared to exploratory and descriptive studies.

Furthermore, the risk of going inherent in relation to the main approach of the research, specifically action research, is limited, as action research intends the researcher to interact collectively with others and develop research findings in the setting studied. As only one of “others”, the researcher’s potential closeness is limited to his interpretation of the emerging entrepreneur and balanced by the influences and interpretations of other actors. In addition, the research and findings have been discussed regularly with individuals outside the FIE, as well as challenged and discussed by individuals visiting the environment. In this way, perspectives and interpretations additional to researcher’s own have been introduced. Finally, the basic case is addressed through the systems’ perspective taken, such that the object of study is studied from multiple levels of analysis and in relation to different constructs of actors and components, providing multiple points of view on the same phenomenon.

## Chapter 4. Findings

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### 4.1 Introduction

In this chapter, the author presents findings related to the methods utilised to engage and interact with empirical material. The structure of the chapter is done as follows: in the first section, the findings examine entrepreneurial intention and how this factor impacts learning retention; the second section corresponds to venture-creation phases, and how learning retention may vary from one phase to another; the third section points out the degree of learning retention through the process of competency acquisition; the fourth section is concerned with the existing relationship between the effectiveness of competency acquisition and practice; the fifth section highlights the importance of the teaching model in competency acquisition; the sixth section shows the evaluation criteria of successful competency acquisition in the frame of our FIE case study; and the final section presents a synthesis of the findings.

Empirical materials generated from participation in the curriculum in coaching, mentoring, and lecturing, observation of group work, educational games, conferences and teachers' meetings, questionnaires conducted in semi-structured interviews and electronic as well as printed documents are presented.

Being part of the FIE (*Formation Innovation Entreprendre*) entrepreneurship innovation programme, the researcher engaged with almost 50 students with varying perspectives and in different contexts as a lecturer, coach, evaluator and, of course, researcher.

This prompted the researcher to enquire into the opportunities of following a group of students more intensively throughout the course, and to complement interviews with participant observations as a research method.

The researcher was granted access to all pedagogical aspects of the course, which ran from February 2014 to July 2016. Students were asked to complete the entrepreneurship modules, and were asked to discourse about the development of their entrepreneurial projects and about their experiences with learning through enterprise.

Their accounts made the researcher aware that the students desired to learn through enterprise but had experienced uncertainties operating within the pedagogical design.

The FIE program aims to develop student competencies related to the delivered modules (see Table 4.1). The research findings examine the degree of the students' post-FIE awareness, acquisition, and contribution with regard to these targeted competencies in each student's professional life.

***Table 4.1. FIE program targeted competencies***

FIE modules	Curriculum's targeted competencies
Innovation and strategy	<b>Know how to construct a business model based on innovation and understand the impact of strategic decisions</b>
Project initiation and management	<b>Master the use of project management tools and construct a venture project</b>
Financial management	<b>Know how to construct a financial plan and negotiate investments</b>
Market access	<b>Master the tools for market studies and validate ideas offered in the market</b>
Entrepreneurship behaviour	<b>Creativity, accountability, self-confidence, tenacity, enthusiasm, humility, solidarity, teamwork, leadership, and conviviality.</b>

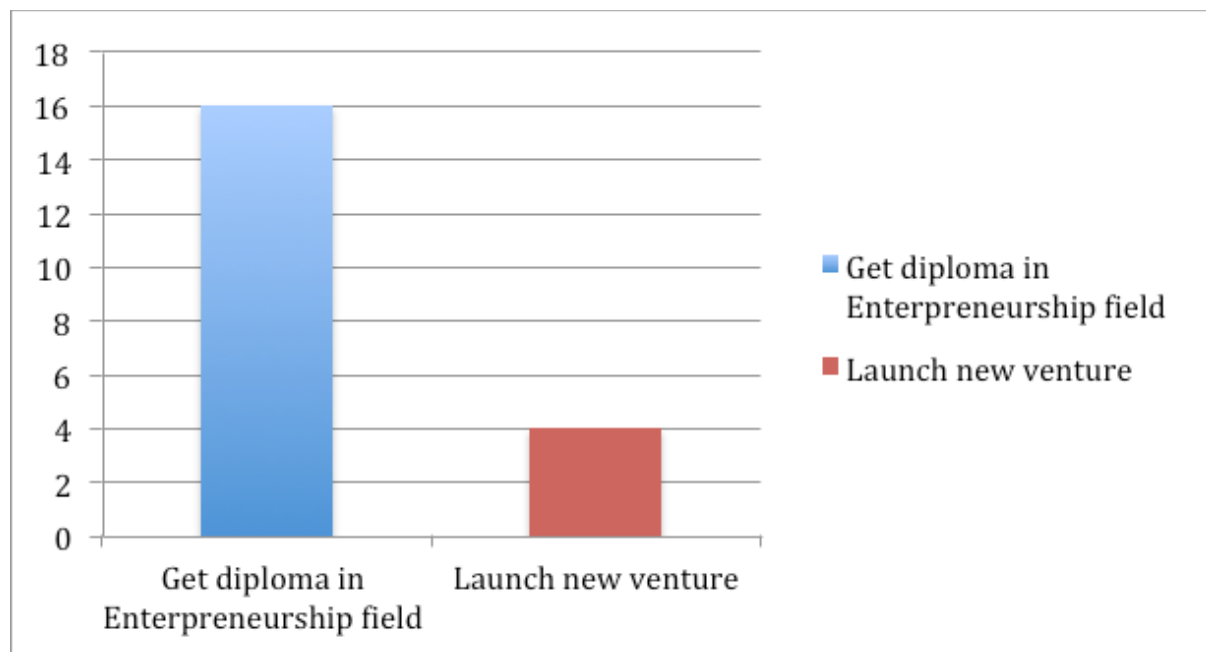
*Source: FIE case study INSAVALOR Manual (2011)*

## 4.2 Entrepreneurial intent

Findings in this section highlight results related to FIE students' intention to engage in entrepreneurial activities.

This section through Figure 4.1 emphasises data gathered in 2014 on students enrolled that year, concerning their intention to engage in entrepreneurial activities, and the possible relationship with venture creation. Students were asked during the enrolment protocol (interview and project pitching) what was their main motivation to enrol in the FIE entrepreneurship programme, and they could choose between two answers, "get diploma in entrepreneurship field" or "intention to launch a venture". Their answers were reported on the enrolment sheet. This section, through Figure 4.1, and including outputs from participatory observations, shows the perspective of intention to launch a venture. Indeed, among the 16 students enrolled in 2014, only 4 students had the intention to launch a venture. The students who demonstrated intention considered that enrolling in this entrepreneurship curriculum

could really help them to succeed in launching a venture. Among the four students, only one succeeded in launching a venture, but none of the students that did not have the intention to launch a venture succeeded in doing so, after two years. Consequently, the present results show that the FIE entrepreneurship programme did not support the development of an intention to launch a venture for students enrolled without initial motivation to launch a venture; consequently, this led to them not succeeding in doing so, even when asked, two years after graduation, if the programme helped them to launch a venture.



***Figure 4.1. FIE programme expectations for students enrolled in 2014***

*Source: Results of questionnaires conducted at the beginning of the 2014 FIE programme*

The impact of intention on venture creation success and competency acquisition is reviewed in two time periods: first, as the students were asked about their enrolment choice during the selection process, during which they were required to present a venture idea, and second, immediately following their enrolment. In the questionnaire, the students could choose between launching a venture and getting a diploma in the entrepreneurship field.

Answers of the questionnaire generated by students regarding the question of motivation in enrolling in FIE entrepreneurship program show clearly that: students do not have necessarily the same objective to learn how to launch and run a venture, and the majority of students were more attracted by the originality of such an entrepreneurship program as compared to an academic curriculum. This was in addition to the fact that at the end of the curriculum students could get both Algerian and French higher education diplomas, which could provide

post-graduate perspectives to study abroad.

Coaching sessions were provided as well to students, in which the researcher challenged them to come up with a clear, important, and urgent issue or problem to solve which appeared to be a constraint to moving forward with the process of venture creation. Problems were listed and written on a flipchart and all students were invited to vote for the problem that was the most relevant for them. The researcher has noticed in compelling all the cited problems, analysis of routes cause, solutions and action plan implementation, that students without intention to launch a venture did not perform well in terms of the number of problems identified, the pertinence of problems cited in term of importance and urgency, the feasibility of proposed solutions, and finally showing commitment in action plan implementation.

This section provides information related to the importance of enrolling students with clear and expressed intention to launch a venture. This clarification of intention appears to be a critical factor in maximizing chances to acquire competencies that support venture creation, if we consider at this stage that the success of entrepreneurship education is immediate venture launching. Depending on the level of intention, ventures may be at different degrees of maturity. The next section provides a perspective of analysis about correlation between intention and venture phases.

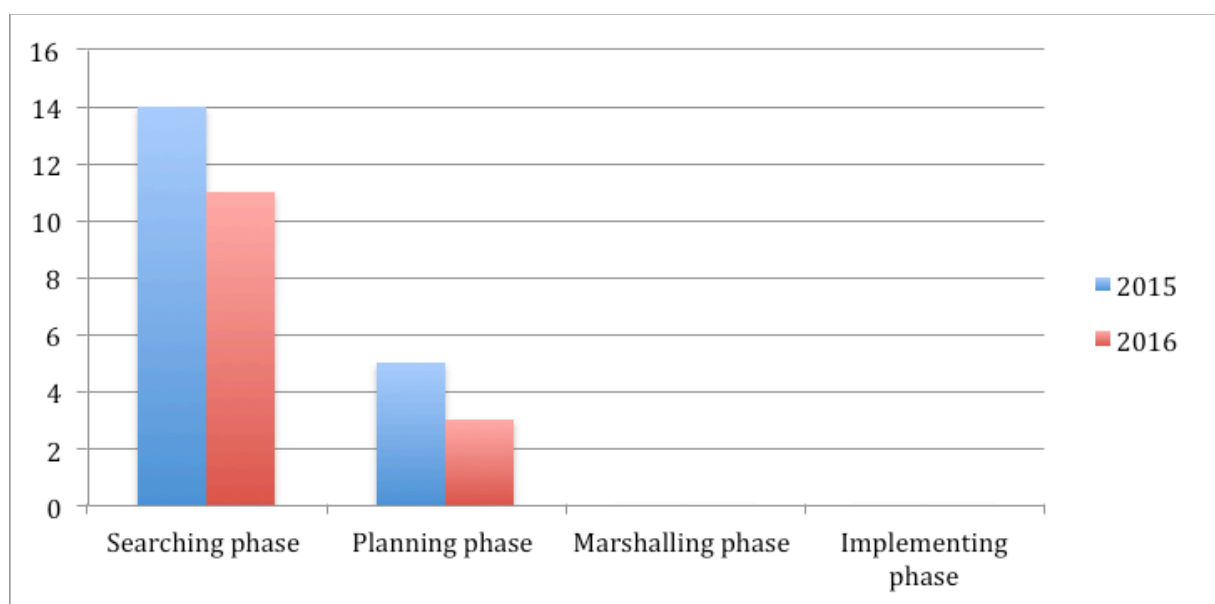
### **4.3 The importance of venture creation phases in the entrepreneurship education process**

This section provides information gathered from enrolled students in 2015 and 2016, respectively, concerning the venture creation phases (Lumpkin, Hills and Shrader, 2004), in which the students' venture projects are positioned.

This section addresses information about the classification of the students' project status, taking into consideration the four phases of a venture creation, accordingly. The first phase is termed "the searching phase," which involves operations such as opportunity identification and venture idea development. The planning phase involves activities by which the entrepreneur transforms the idea into a feasible business plan. Here the idea or business concept is evaluated in terms of various market and profitability criteria. The marshalling phase involves collecting resources to create the venture. The fourth phase is the implementing phase, which requires that the entrepreneur grow the business and ensures the sustainability of the venture. To this end, the successful entrepreneur applies management

skills and principles, particularly in implementing people management and financial management.

Comparing venture phase standards with student project materials, namely project power point presentations and project pitch evaluation sheets (generated from the project evaluation jury), the findings emphasise that projects were only on the “searching” and “planning” phases due to the fact that students had just started experiencing the concept of entrepreneurship and discovering that their ideas could be structured into venture projects, and due to the shortage in entrepreneurship culture and knowledge about venture process.



***Figure 4.2. Venture phases (Lumpkin, Hills and Shrader, 2004) for students enrolled in 2015 and 2016***

*Source: Results of questionnaires conducted at the beginning of the 2015 and 2016 respectively FIE program*

Supported by participatory observations of the presentations of the students’ respective projects, their coaching sessions, and the results of conducted questionnaires, Figure 4.2 indicates that among the 19 enrolled students in 2015, 14 of the students’ projects were in the searching phase. This phase involves looking for opportunity identification and development, and also involves the entrepreneur’s creative work. The figure also shows that only 5 student projects were in the planning phase, in which the growing entrepreneur (student) converts the idea into a feasible business plan. In this phase the idea or business concept is evaluated in terms of various market and profitability criteria. The same trend as 2015 is noticed in survey results for 2016, with 14 students enrolled, which means 11 students’ projects were in the searching phase, and 3 students’ projects were in a planning phase. The objectives for the students in phase one were to look for opportunities and do market research, which they need



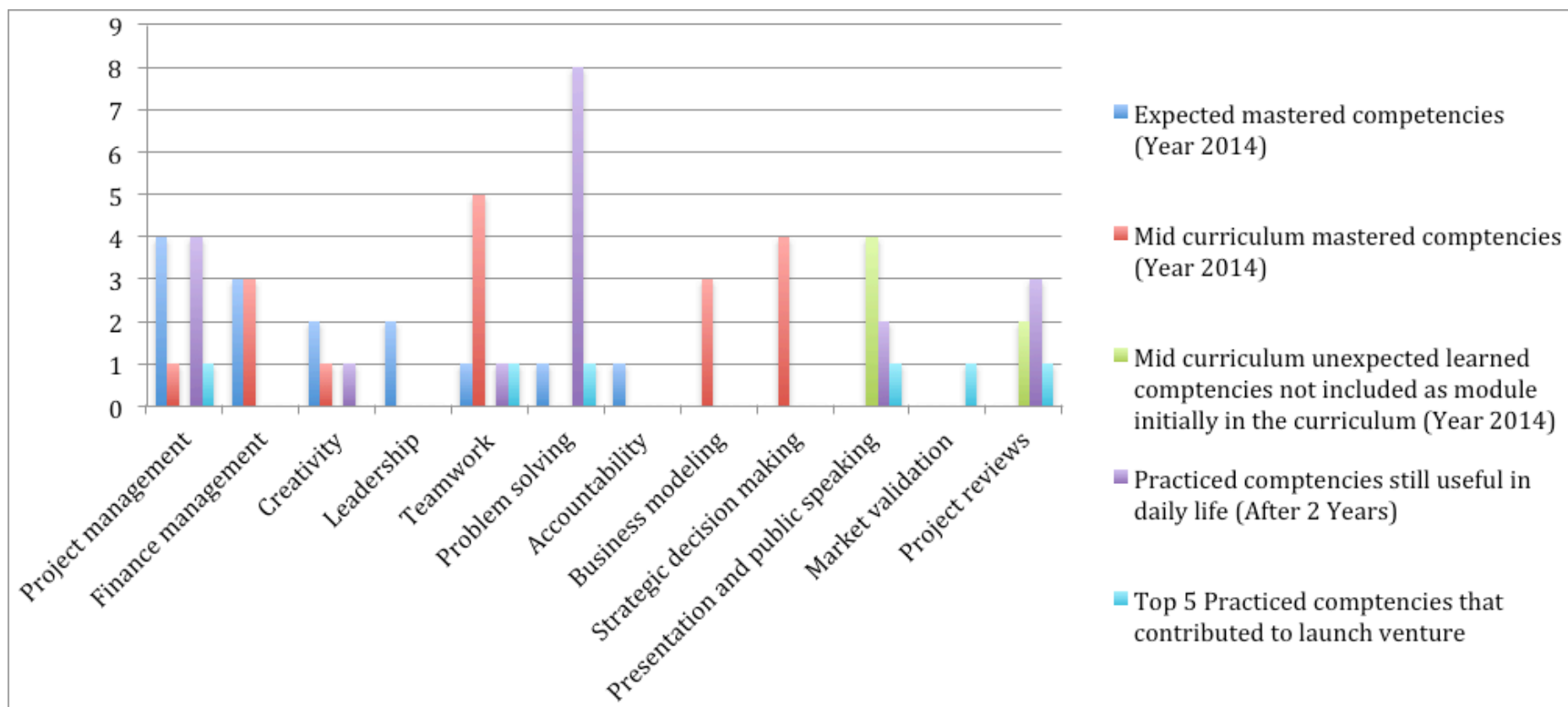
to learn how to do.

During the program only a few students moved from phase one (searching) to phase two (planning), mainly due to the fact that students focus more on providing academic deliverables and teachers expectations, and not necessary on their venture project requirements.

Identification of venture creation phases leads to ask the question: Which competencies are to be learnt/taught for each phase? Indeed, previous research has suggested that it is necessary to continually improve the multiple competencies required to manage ever-changing venture phases, and that requires competent functioning, which is based on both skills and awareness of mastering the competency through efficacy in undertaken actions.

#### **4.4 Learning retention through competency acquisition**

This section provides information concerning learning retention gathered from enrolled students in 2014, as measured by the students' perception regardless of the level of competency acquisition.



***Figure 4.3. Competency mapping for 2014 enrolled students***

*Source: Results of questionnaires conducted at the beginning, mid curriculum and 2 years after the 2014 FIE program*

Figure 4.3 shows the competency mapping for enrolled students in 2014; it illustrates the level of student awareness, regardless of the targeted competencies to be acquired and the degree of knowledge acquisition throughout the curriculum.

This section provides evidence regarding the competencies targeted by the entrepreneurship program, plus the students' degree of awareness of competencies that need to be acquired, and finally the identification of expected and unexpected useful competencies. Indeed, measuring outcomes of the success of an undergraduate entrepreneurship programme represents competencies that will be useful in starting a business venture throughout the venture creation phases. These outcomes represent measurable knowledge, skills, and abilities, meaning competencies that can more effectively demonstrate the value and success of an undergraduate entrepreneurship program.

Results of questionnaires conducted at the beginning, mid curriculum, and two weeks before graduation regarding **expected competencies to learn**, are noted in Figure 4.3. Figure 4.3 shows that students enrolled in 2014 expect to learn and master some competencies by the end of the curriculum, specifically mentioning project and financial management, leadership, teamwork, accountability, and problem solving. Only students with a willingness to launch a venture actually mentioned problem solving as a competency to learn, even knowing that it is not a competency that is targeted in the curriculum.

Among the cited **learnt competencies in mid-curriculum**, it is noticed that, only financial management, creativity and teamwork were perceived as mastered competencies. Findings indicate other unexpected mastered competencies mentioned, notably business modelling and strategic decision-making.

Participatory observations show that perception of mastered competencies by the students is related to the deliverables provided, and records received from teachers, but the perceived mastered competencies lacked business context applications, experiential learning reflections. Below are some quotations about faced problems (original text is in French and was translated to English) from students that illustrate the focus of students on technical deliverables, which are disconnected from business context and application:

*Student 1: "I don't need to work on a financial plan right now, my business model is well constructed."*

*Students 2: “I have difficulties to manage my time, we have an upcoming project review to prepare for, and we have in the same week an exam in marketing; this is really challenging.”*

*Students 3: “I am a bit confused; I discussed my project with a family member who is in the field of my venture project, and he is providing the opposite recommendation of what our instructor in marketing is saying.”*

*Student 4: “I missed that last coaching session because I had to prepare for the financial management exam, so I could not work on the agreed action plan.”*

*Student 5: “I don't see how I can make a market study as explained by our instructor, knowing that I don't have access to the sample of companies, and I don't even have their contact details.”*

The 2014 students were interviewed again after getting their diplomas regarding the **learnt competencies two years after graduation**. The questionnaires and respective students' answers emphasise on competencies that had been acquired during the FIE program, and that continue to remain useful in the students' daily lives.

Significantly, it is clear that the one student that had the intention to launch a venture was more aware of the useful competencies gained, citing project management, teamwork, problem solving, presentation and public speaking, market validation and project reviewing.

These competencies were perceived as contributing to a venture launch, keeping in mind that only **one student launched a venture project**. On the other side, among students that had not shown intent to launch, nor launched, a venture, we noticed that the competencies, which are still useful in their daily lives, are project management, creativity, teamwork, as well as presentation and public speaking (see Table 4.2).

*Table 4.2. Cited competencies that contribute in daily life and launch venture cohort 2014*

Competency useful in daily life and contributing to launch venture	Number of times the competency is cited / among 16 students
Project management	2
Teamwork	2
Problem solving	1
Presentation and public speaking	3
Market validation	1
Project reviewing	4

This section presents **learning retention synthesis** in providing indications about the existing gap between the students' expected competencies to learn, and those that make sense for their objective of enrolling in the FIE entrepreneurship programme. It was indicated that student enrolling objectives may diverge, in parallel to competency levels of awareness, which means that some students will acquire some competencies that others will not, and at the end of the curriculum some competencies are considered useful and others not.

The student with entrepreneurial intent showed more commitment and demonstrated a more complete understanding of the relationship between the expected competencies and the acquired ones.

It is noticed that competencies mentioned by students might not match the competencies taught and required in the job market of either self- or salaried employment. Indeed, problem solving, presentation and public speaking and project reviewing were not incorporated in the FIE pedagogic material, but they were acquired. On the other hand, competencies such as financial management, leadership, and strategic decision-making were taught but they were not perceived as useful. These results also question the overall effectiveness of FIE entrepreneurship programme in terms of the design of teaching materials and the roles of teaching staff.

Looking at the degree of entrepreneurial intent and comparing this to the number of established ventures commonly assesses entrepreneurship learning effectiveness. However, focusing on competency acquisition, which is essential to the entrepreneurial journey, may provide a more pertinent as well as immediate measure of the effectiveness and impact of entrepreneurship education.

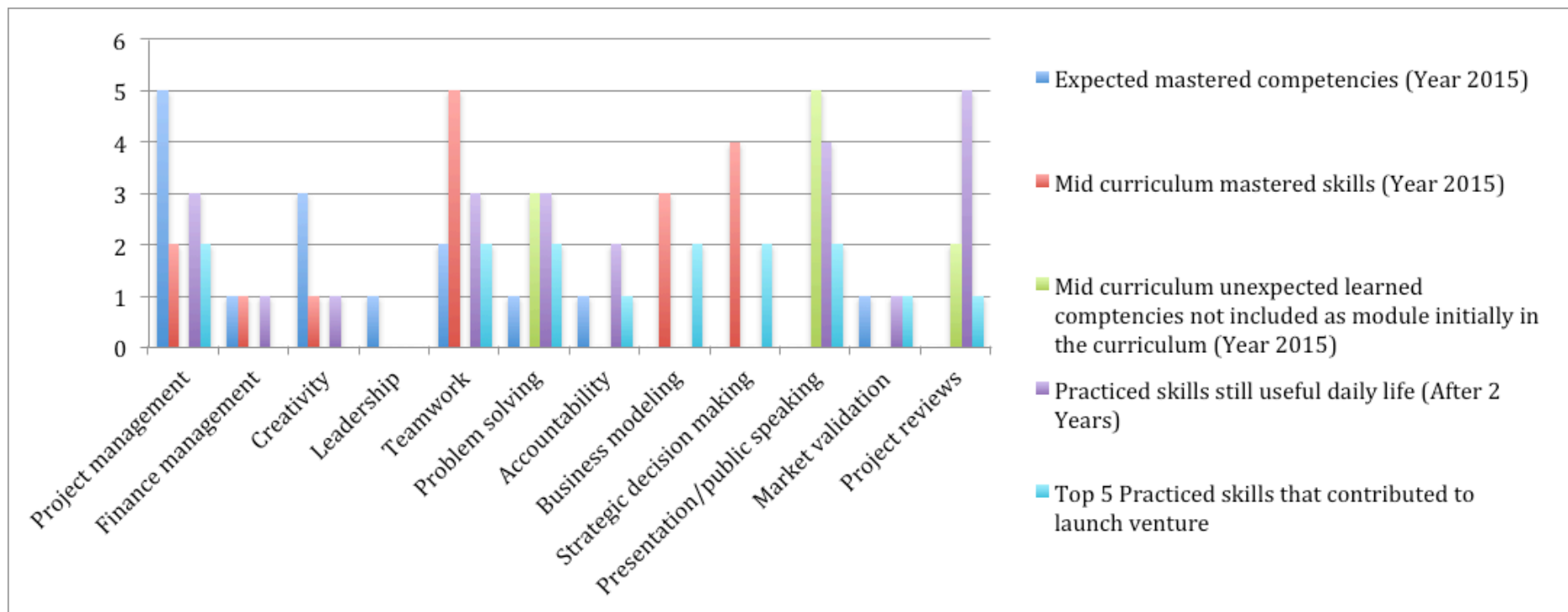
Table 4.3 illustrates, first, **the expected competencies to learn**, and it is noticed that the FIE case study student groups aimed to learn competencies which are trainable and can be developed by individuals. Questionnaire results indicate that the students are particularly concerned about the development of presentation and public speaking skills along with the problem-solving categories of the needed competencies. While the FIE programme did not even target these categories, these competencies emphasise the ability to interact cooperatively to solve problems and demonstrate innovations, as well as to communicate and create meaning for actions. Substantially, Table 4.3 shows similarities between cohorts 2014 and 2015 in terms of the aimed competencies to learn.

*Table 4.3. Similarities between 2014 and 2015 in term of expected competency to learn*

<b>Cited competencies to learn</b>	<b>Number of times cited in 2014 cohort</b>	<b>Number of times cited in 2015 cohort</b>
Project management	4	5
Finance management	3	1
Creativity	2	3
Leadership	2	1
Team work	1	2
Problem solving	1	1
Accountability	1	1
Market validation	0	1

Figure 4.4 below illustrates **learnt competencies in mid-curriculum** for students enrolled in 2015. The cited expected to learn and mastered competencies by the end of the curriculum are: project and financial management, creativity, leadership, teamwork, accountability, market validation and problem solving,. Among the cited expected competencies, it was apparent that, mid-curriculum, only project management, teamwork, business modelling, and strategic decision-making were perceived as mastered. These findings corroborate the fact that their venture projects were positioned in the phases where these competencies are more needed. Consequently, students learn competencies that match their objectives. When they were surveyed two years after graduation, the students mentioned that the programme helped to master some competencies such as problem solving, presentation and public speaking as well how to do project reviews that they perceived, whether as entrepreneurs or employees, to be useful in daily life. It is interesting to notice that the programme did not target these competencies that were perceived to be useful especially for venture creation, despite being

practiced intensively during the programme. **Consequently, competencies, whether intentionally taught or not, are used and useful when they are sufficiently put into practice.**



**Figure 4.4. Competency mapping for 2015 enrolled students**

*Source: Results of questionnaires conducted at the beginning, mid curriculum and 2 years after the 2015 FIE program*

Figure 4.4 shows the importance of continuous exposure to learning, awareness, and familiarity of students, regardless of the targeted learning and competency acquisition; successful transfer might depend on deeply personal takeaways from the educational process.



The **competencies that remain useful in students' daily lives two years after graduation**, namely project management, teamwork, problem solving, presentation and public speaking, market validation, and project reviews, are the same competencies that the students perceive to contribute to a venture launch. On the other hand, competencies that are still useful in the daily lives of the students that did not launch ventures are apparently project and financial management, creativity, teamwork, problem solving, accountability, presentation and public speaking, market validation and project reviews. The degree of competency awareness of the 2015 students was significantly different than the 2014 cohort.

In questionnaires conducted after two years with the students who graduated in 2015, students cited competencies perceived as contributing to venture creation to be project management, teamwork, problem solving, accountability, business modelling, presentation and public speaking, market validation and project reviewing. Table 4.4 shows the most cited useful competencies two years after graduation.

***Table 4.4: Cited competencies hat contribute in daily life and launch venture cohort 2015***

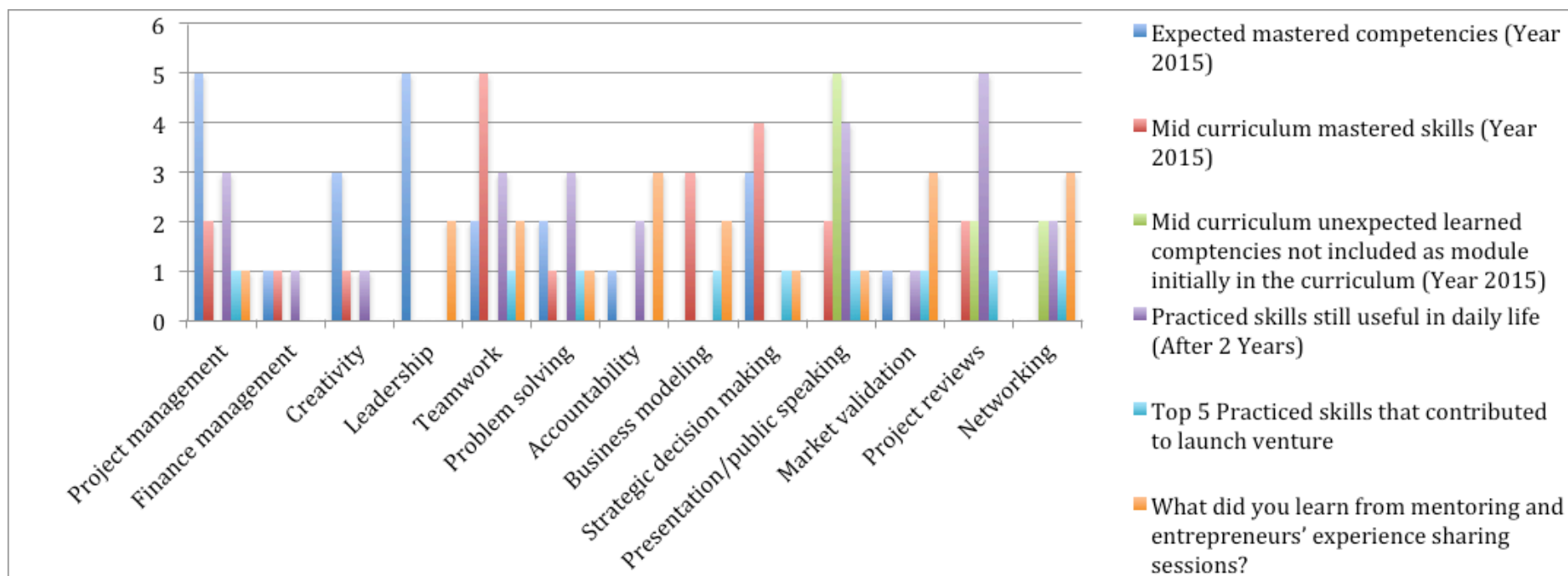
Competency useful in daily life and contributing to launch venture	Number of times the competency is cited among 16 students
Project management	5
Teamwork	5
Problem solving	5
Presentation and public speaking	6
Market validation	1
Project reviewing	6
Accountability	3
Business modelling	2
Strategic decision making	2

This section illustrates findings that clearly show that the 2015 students, who had been selected because of their intention to launch ventures, acquired more competencies and are more aware about the competencies that contribute to venture creation, keeping in mind that, for 2015, **there were two students who succeeded in launching ventures.**

In the beginning of the curriculum, and according to questionnaires conducted at different points in the programme, where students were asked to cite what type of learning activity or

module they thought was important to master in order to succeed in launching a venture, students perceived the importance of various activities in the entrepreneurship programme. For example, project management and creativity were cited respectively 5 and 3 times, teamwork twice, and financial management, leadership, problem solving, accountability, and market validation once each. However, the more they progressed in the curriculum in terms of learning, the more the expectations converged among students. The students pointed out that the unexpected competencies that they mastered are linked to venture creation. In fact, two years after graduation, students who graduated in 2015 listed more competencies in the categories of non-expected competencies to learn. Those competencies were also indicated in their answer to the questionnaires mid-curriculum, which means that students were already aware of the pertinence of those competencies in terms of practice during the programme through the project reviews.

It is interesting to observe, as is shown in Figure 4.5, that there is also a phenomenon of decrease in competency awareness and mastery. Indeed, as shown, competency such as project management and creativity were taught, and were cited respectively 5 and 3 times; however, two years after graduation they were cited 3 and 1 times, respectively, as practiced and useful in daily life. So, when students do not practice a competency enough, their initial level of mastery decreases. The issue here is particularly related to competencies that are identified as indispensable for venture creation. This reinforces the necessity to answer the following question: “Which skills and competencies must be targeted and practiced in entrepreneurship education?”



***Figure 4.5. Competency mapping for 2016 enrolled students***

*Source: Results of questionnaires conducted at the beginning, mid curriculum and 2 years after the 2016 FIE program*

In the process of the present action research, after the 2014 student graduation, a first reflection was made on the process of student selection for 2015 by introducing the demonstration of intention during the venture project presentations. Another reflection was done following the 2016 student graduation by initiating lectures by experienced entrepreneurs. Figure 4.5 illustrates that the 2016 students expect to learn and master some competencies by the end of the curriculum, including project and financial management, creativity, leadership, teamwork, accountability, market validation, and problem solving. Among the cited expected competencies, it is noticed that, mid-curriculum, specifically project and financial management, creativity, teamwork, problem solving, project reviews, business modelling, and strategic decision-making were perceived as mastered. The programme did not aim to teach problem solving, presentation and public speaking skills, or how to do project reviews, yet the students perceived them as mastered and useful.

Participatory observations showed again that perception of mastered competencies from the students is related to deliverables provided and records received from teachers. However, from the participatory researcher's perspective, the perceived mastered competencies lack business context applications, field experimentation, and reflections. Two years after graduation, questionnaires reported emphasis on competencies, which remain useful in daily life for the students enrolled in 2016 who did not launch ventures. Competencies that are mentioned include project and financial management, creativity, teamwork, problem solving, accountability, presentation and public speaking skills, market validation and project reviews. In questionnaires conducted two years after graduation, students graduated in 2016 who launched ventures cited competencies that were perceived as contributing to venture creation. The students mentioned project and financial management, creativity, teamwork, problem solving, accountability, business modelling, presentation and public speaking skills, market validation, project reviews and networking.

This section through Figure 4.5 illustrates that, for the second consecutive batch, students selected with the intention to launch ventures and graduated in 2016 acquired more competencies, comparing with 2014 where, among all cited competencies in 2015 and 2016, project management, teamwork were cited respectively 2 and 5 times by the same number of students, keeping in mind that for 2015 there were 19 enrolled students. In addition to competencies that were not cited in 2015 and 2014, students cited as newly acquired competencies: business modelling (cited 3 times), presentation and public speaking (twice)

and project reviews (cited twice). For 2016, **there were again two students that succeeded in launching ventures.**

Overall, for 2016, the degree of competency awareness of students was distinctive. In the beginning of the curriculum, students largely perceived the importance of various activities that integrated lectures by experienced entrepreneurs in the programme. Yet, the more they progressed in the curriculum in terms of learning, the more the expectations converged among the students, specifically mentioning the awareness of networking as a competency to master, while the students also pointed out that they considered the unexpected competencies that they mastered to be linked to venture creation. Two years after graduation, the 2016 students identified more competencies than the 2015 students in the categories of non-expected competencies, those related to the level of student awareness since the beginning of the curriculum, competencies practiced throughout the programme through the project reviews, and expert entrepreneurs' shared experiences, which combine experience and reflection on the deliverables related to the retention of learning targeted by the FIE program.

This section illustrates the importance of acquired competencies in measuring the effectiveness of the entrepreneurship programme. Perception about learning experience varies among students in terms of acquired competencies and the key factors in a given venture's successful creation. Findings indicate that the more students practice a competency, the more they perceive it as useful for launching a venture, and despite the difference in the learning experience, some competencies seem to be more predominant and essential for launching a venture in particular, and for professional life in general.

**Results suggest that the competencies that contribute the most to launching a venture are problem solving, business modelling, presentation and public speaking, project reviewing, and networking.**

#### **4.5 Competency acquisition through practice**

This section provides information gathered two years of graduation for each participant from all groups of students included in the research sample. Data were gathered on the amount of practice of competencies during the programme, and how the practiced competencies were perceived in terms of mastery and usefulness in venture creation. Results suggest that successful entrepreneurship does not exist without actions and practice. Students were requested to determine goals, plan for goal achievement, monitor execution, and adjust for

their venture project success. It is obvious that, to achieve these goals, some means were needed, one of the most significant being competencies. This section provides some evidence about the degree of acquisition of the competencies according to student perceptions and awareness about the practiced competencies pertaining to the curriculum for students enrolled in 2014, 2015, and 2016, respectively.

*Table 4.5. Practiced competencies awareness for enrolled students in 2014, 2015, and 2016*

Targeted competencies to be learnt	Competencies learning practiced and learnt during the curriculum			Competencies learning useful in daily life			Competencies learning useful in launching venture		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Curriculum years									
Business modelling	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Strategic decisions making	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Project management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial planning	Yes	Yes	Yes	No	No	No	No	No	No
Negotiation with investors	No	No	No	No	No	No	No	No	No
Market access and validation	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Creativity	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Accountability	No	Yes	Yes	No	No	Yes	No	No	Yes
Self-confidence	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tenacity	No	No	No	No	No	No	No	No	No
Enthusiasm	No	No	No	No	No	No	No	No	No
Humility	No	No	No	No	No	No	No	No	No
Solidarity	No	No	No	No	No	No	No	No	No
Team work	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leadership	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Hospitality	No	No	No	No	No	No	No	No	No
Competencies not targeted by the program	Competencies not introduced as module but practiced during the curriculum			Competencies (not introduced as module) practiced & useful in daily life			Competencies (not introduced as module) practiced & useful in launching venture		
Problem solving	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Project reviewing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Networking	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes

*Source: Results of questionnaires conducted at the beginning, mid curriculum, and 2 years after the FIE program, respectively, for 2014, 2015 and 2016*

Table 4.5 illustrates student perceptions during the curriculum for 2014, 2015, and 2016, respectively, regardless of each student's awareness about the practiced competencies, and the

usefulness of the acquired competencies in daily life as an employee, a post-graduation student, or an entrepreneur. Identifying and evaluating the competencies which were perceived as useful to launch a venture provides an analytical perspective on the effectiveness of an entrepreneurship programme such as FIE. For each course, the extent to which the learning outcome is introduced and practiced, as well as perceived as useful or mastered in the course, is identified in the matrix. The introduced modules and competencies are placed on the vertical axis of the table and the prevalence, or lack thereof, of competency practice is recorded in the horizontal cells of the table. Developing such a table allows for a comprehensive look at the programme, including subsequent contributions of each course toward the overall student competency awareness practice and usefulness. It is interesting to notice that not all aimed competencies to be learnt in the program were perceived as practiced in the curriculum, namely negotiation with investors, accountability, tenacity, enthusiasm, humility, solidarity and conviviality. This begs the question as to whether these competencies really make sense for students and are useful in daily life or in venture creation; and if learning these competencies is useful, why did students not assimilate them? The targeted competencies that were practiced during the curriculum and perceived by the students as useful either in daily life in general or particularly in venture creation are project management, self-confidence, teamwork and leadership. The specific competencies that are perceived to be related to and useful in venture creation are business modelling (placing the venture project according to opportunity and context), project management, market validation (practical validation of the idea offered in the market), self-confidence, teamwork, and leadership.

Table 4.5 also examines if there are any differences in competency acquisition features in relation to the level of practice of these competencies. There seem to be significant differences in terms of perception of competency mastery and usefulness. Indeed, competencies such as problem solving, networking, and project reviewing were perceived as mastered and useful in venture creation two years after graduation, knowing that these three competencies were not specifically targeted by the FIE programme. Measuring success of entrepreneurship education is often related to new venture creation, as such entrepreneurship pedagogy frequently focuses on teaching students either the skills or theories needed to launch a new venture.

Table 4.6 illustrates the matching of the FIE case study entrepreneurship pedagogy with the practice-based approach (Neck et al., 2014), analysis of the FIE manual (see appendix)

supported by participatory observations in the field, making it possible to study the progress of the curriculum, regardless of the level of application of each practice (creation, experimentation, empathy, play, and reflection). The completely applied practices will first be presented, then partly applied, and then the rest applied.

***Table 4.6. Matching of practice occurring in FIE versus Neck and Greene model***

<b>Applying of practice in FIE case study education model</b>	<b>Matching</b>	<b>Not Matching</b>	<b>Matching Partly</b>
<b>Practice of creation</b>	/	/	Practice of creation corresponds only to actions undertaken in operations of early stages of new venture creation, namely searching and opportunity identification.
<b>Practice of experimentation</b>	Students are asked to give structure and materialize their ideas, even if it is following some templates and deliverables; it allowed them to practice creation in giving a tangible form to their project.	/	/
<b>Practice of play</b>	/	/	Practice of play corresponds to the games, which are in place at the early stage of the curriculum, and other educational games in some modules; however, the purpose is not developing problem-solving skills, it is related to the module knowledge acquisition (finance, project



			management....).
<b>Practice of empathy</b>	/	/	Practice of empathy corresponds to the interactions among students; however, there are no reflections in terms of amount of time and structured sessions allocated regarding quality of interactions and learning; coaches do it sometimes when teamwork issues occur.
<b>Practice of reflection</b>	/	No, there is no aimed or structured practice of reflection, even though there is a reflection (called experience feedback) at the end of the curriculum as a closed operation, which means that action will no longer be undertaken; it is just another deliverable document that enters in the evaluation.	/

The FIE programme applies the practice of experimentation proposed by Neck et al. (2014). Experimentation is leveraging design thinking to help move students beyond their often self-imposed creative hurdles by acting, learning, and building through small cycles as they work on real life problems with the resources at hand, and working within what they consider to be an acceptable level of risk or affordable loss. Indeed, periodically, students are asked to give structure and materialise their ideas (design thinking), even if it is following some templates and deliverables; it allows them to practice creation by giving a tangible form to their project and deliver it via the project review presentation. It is interesting to note that competencies

that were practiced intensively are perceived as mastered and useful in venture creation, such as presentation and public speaking skills.

The results report the degree of application of the principals of the practice-based teaching method in the FIE case study, and empirical data suggest that the learning is more significant when students are more aware about what they perceive to be a needed competency to learn, and where the programme emphasises practiced competencies that are related to this learning. Another interesting point is that the application of a practice, whether a practice of creation, play or empathy, provides students with a certain context where they can apply learning, evaluate their degree of mastery and apply those competencies later on after their graduation. These findings also cast light on the existence of some variables, such as the degree of competency acquisition that turned out to be pertinent in the evaluation of entrepreneurship teaching effectiveness.

Using Tables 4.6 and 4.7 in the form of a matrix, combined with in-depth and systemic participatory observations, allows the use of the practice-based approach principals as a kind of filter to measure the effectiveness of the FIE case study, not in terms of venture creation but in terms of competency acquisition, which is categorised as supporting venture creation, specifically mentioning problem solving, networking, and market validation. It is clear that major practiced competencies were either practiced in the frame of play, creation, experimentation, or empathy, and were perceived by students as useful for venture creation in particular, and in daily life in general. However, in the absence of the practice of reflection, which is supposed to be used to develop student understanding about the role and nature of experimentation, it shows the important number of targeted competencies that were not covered. A real situation that illustrates this possible link between the degree of competency acquisition that is practiced and its relationship with reflection is herein described. In the coaching session, it was evident that the students were in a total blocked state; they were saying, *"We don't know what to do,"* even though they were doing some tasks related to their academic deliverables. When asked reflective questions like, *"Why are you doing what you are doing? What do you want to learn by doing what you are doing now?"* however, they immediately stopped doing what they were doing, and engaged in a constructive discussion in which they practiced and demonstrated empathy, allowing them to gain energy and to find out some new paths and ways to generate value for their project.

This section provides evidence about the probable existence of a relationship between the

degree of acquisition of competencies and the degree of practice of these competencies throughout an entrepreneurship curriculum. Data also illustrates the influence of a particular configuration of the curriculum, where it is observed that even if a competency to be acquired is not deliberately taught as an objective, the fact that this competency is practiced makes it perceived as mastered and more importantly perceived as useful, even two years after graduation. Now that the existence of a relationship between competency acquisition and practice has been emphasised, it is necessary to explore an efficient learning model that would allow the setting of a pertinent entrepreneurship programme. Practice-based learning (Neck et al, 2013) and action learning models (Marquardt, 2001) seem interesting to explore, as both models are highly practice oriented.

#### **4.6 The importance of a teaching model in competency acquisition**

This section provides information about the FIE curriculum and teaching strategies as a teaching model, and to what degree it applies to Neck et al (2014) models in terms of a set of practices or phases of learning: iterative, creative, action focused, investment for learning and collaborative settings (see Chapter 2).

The present section provides data about the anchor of the FIE case study in terms of teaching methods, using a comparison with the practice-based approach of Neck, Green and Brush (2014). This comparison was done mainly by studying the FIE manual (see appendix), and was supported by teaching deliverables done in the frame of the participatory observations, and finally by consulted students' deliverables as well as teachers' evaluations, like selection and final evaluation forms, project review presentations, project review memoires, etc. (see appendix). Table 4.4 illustrates the correspondence between FIE as a process of teaching as it was designed and delivered by entering inputs, and students must deliver outputs all over the curriculum; indeed, FIE is fundamentally a teaching process: it incorporates planning, implementation, evaluation, and revision. Planning and teaching a class are similar for most instructors, but more overlooked are the steps of evaluation and revision.

FIE conducts classroom assessments by evaluating the project review presentations and the degree of implementation of theoretical modules learning, but unfortunately there are no other means of receiving feedback on a regular basis from students. It is surprisingly easy to misunderstand whether or not a particular teaching method or strategy has been effective (Centre for New Designs in Learning and Scholarship, Georgetown University). The Neck, Green and Brush (2014) teaching method comprises seven components. The first element of

this teaching method is a set of practices, namely practice of play, practice of experimentation, practice of empathy, practice of creation, and practice of reflection, as explained in detail in Chapter 2, Section 2.8. The second element is phases of learning, specifically learning how we learn, followed by learning how to identify gaps in learning, and finally aimed learning. The third element is iterative, involving on the one hand iteration of the deliverables, and on the other hand iteration of the practices of learning. The fourth element is creative, as creativity is seen in the results of iteration; that is, the new or creative components that were integrated into the previous deliverables. The fifth is being action oriented, and this component is crucial because learners should act on the planned iterations. The sixth element is investment in learning, as indeed the focus of the evaluations is on the amount of learning, how much is goal-oriented and the amount of learning retained. The last component is collaborative, meaning that the majority of learning is done in student groups. Creative work, actions, and iterations are done in cooperative groups; however, feedback is shared, and teaching adjustments are done in collaboration with faculty.

Table 4.7 shows that there are few matches between the FIE teaching process and the Neck et al. (2014) method. Indeed, this model (Neck et al. 2014) provides a practice-based framework that allows us to evaluate the performance of FIE, from the perspective of our research questions, which are articulated around competency acquisition. Starting with a set of practices, it corresponds partly, where students are challenged on delivering outputs; however, some practices are experienced, like the practice of play. Regarding phases of learning, there is no matching where students deliver outputs according to learning absorbed in the sequence of modules and project reviews. Some iteration was made only for the project reviews; however, iterations are not done as a part of the learning practices. Regarding creative work, it is difficult to say that it was applied because of the fact that students are very conditioned by templates in terms of deliverables, and the coaches and teachers should approve all additional inputs. The FIE teaching model integrates action focus partly, where action is demonstrated only in the frame of project review delivery and educational games. The focus on action is also partly present, the FIE manual clearly identifying the learning that should be acquired; however, there is a lot of learning which goes on that doesn't involve a clear activity or practice. Finally, collaboration is present where students work in groups; still the feedback and interactions between students and faculty are very rare and done in a non-formalised and unstructured way.

**Table 4.7. *Matching of the teaching model targeted by FIE versus Neck and Greene model***

<b>Component of FIE teaching model</b>	<b>Matching</b>	<b>Not matching</b>	<b>Matching Partly</b>
<b>A set of practices</b>	/	/	Known inputs and predicted outputs (project deliverables, see table below); however, there is a variety of modules integrating sets of practices (play, empathy, and experimentation).
<b>Phases of learning</b>	/	No, even though the curriculum activities are called phases, it does not correspond; the curriculum is a sequence of modules parallel to the project (venture project) reviews.	/
<b>Iterative</b>	/	/	Iterations concern only the project reviews.
<b>Creative</b>	/	No, does not match, students are requested to follow templates for deliverables regardless of their projects; there is very little creativity: iterations on projects are teaching staff driven.	/
<b>Action Focus</b>	/	/	The actions done by students in the early stages of the curriculum concern necessary operations to do with the frame of venture creation; however, the remaining operations are more related to theory and academic deliverables.

<b>Investment in learning</b>	/	/	There is a clear focus on some learning; too much learning in fact (see appendix), which makes the appropriation difficult especially when students are evaluated according to their deliverables.
<b>Collaborative</b>	/	/	Even though, the curriculum is highly collaborative for students where every 5 students work on a team for a single project throughout the curriculum. The collaboration for pedagogical staff is minimal.

#### 4.7 Evaluation criteria of success of competency acquisition

This section reveals some data about the FIE case study entrepreneurship experience in terms of aimed competencies and how those competencies are evaluated. Table 4.8 shows, in columns, the different phases of the programme's process and the related deliverables. In rows, it shows the competencies aimed to be learnt by students in each phase, in addition to the evaluation criteria set up to evaluate whether the competency was acquired or not. The goal of this analysis is to point out whether the FIE pedagogic material setting focuses on venture creation evaluation criterion or more academic ones, and to what extent the evaluation is effective.

***Table 4.8. FIE student evaluation criteria***

<b>Modules / Activities of FIE case study</b>	<b>Aimed competencies to be evaluated by FIE</b>	<b>FIE's evaluation criteria</b>
<p><u>Phase 1:</u> Ideation and entrepreneurial pre-project identification.</p> <p><u>Deliverables phase 1:</u></p> <p>1) Synthetic document about concepts related to entrepreneurial project</p>	<ul style="list-style-type: none"> <li>• Know how to elaborate and write a synthetic document explaining concepts such as enterprising, business plan, strategy, competitiveness analysis and entrepreneurial project transformation</li> <li>• Know how to make a public</li> </ul>	<ul style="list-style-type: none"> <li>• Problematic identification</li> <li>• Solution argumentation for the problematic</li> <li>• Writing quality</li> <li>• Literature review quality</li> <li>• Entrepreneurial pre-project's</li> </ul>

2) Public presentation about the pertinence of the business opportunity	presentation about the entrepreneurial pre-project and demonstrate the opportunity pertinence	<p>pertinent key performance indicators identification</p> <ul style="list-style-type: none"> <li>• Demonstrate the innovativeness of the entrepreneurial pre-project</li> </ul>
<p><u>Phase 2:</u> Piloting the entrepreneurial project and the team in terms of: team leadership, team motivation, project management and decision-making.</p> <p><u>Deliverables phase 2:</u></p> <p>1) Evaluation interviews with the team about team progress and living elaborated in written document</p> <p>2) Notebook about project management tool tracking (Team minutes of meetings, market studies, interview guide, questionnaires, documents used for decision making, teamwork process...)</p> <p>3) Project review one (project orientation)</p>	<ul style="list-style-type: none"> <li>• Capacity to work in team</li> <li>• Listening</li> <li>• Capacity to demonstrate leadership</li> <li>• Contribute actively to teamwork</li> <li>• Utilisation of project management tools</li> <li>• Decision-making capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity to convince</li> <li>• Idea's context understanding</li> <li>• Place the entrepreneurial pre-project in a relative clear vision</li> <li>• Make a public presentation of the entrepreneurial pre-project advancement and action plans evaluation</li> </ul>
<p><u>Phase 3:</u> Constructing the entrepreneurial project in terms of: project's vision, stakeholders' identification, opportunity validation, market offer conception, financial hypotheses elaboration and validation; project's legal status options study and stakeholder negotiation and project buy-in</p>	<ul style="list-style-type: none"> <li>• Capacity to imagine innovative solutions</li> <li>• Capacity to formalize stakeholders mapping</li> <li>• Capacity to do research on information needed for decision-</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity to present orally a clear project with visual support with key performance indicators in the designated timing</li> <li>• Capacity to create and present an innovative project</li> <li>• Pertinence to the project regardless of the stakeholders;</li> </ul>

<u>Deliverables phase 3:</u> <ol style="list-style-type: none"> <li>1) Technical study notebook (innovativeness and stakeholders)</li> <li>2) Project review two (Market description and study)</li> <li>3) 3-year financial plan (ROI and number of jobs to be created)</li> <li>4) Business plan</li> </ol>	<p>making</p> <ul style="list-style-type: none"> <li>• Know how to analyse the applicable functionality of the project</li> <li>• Know how to make financial planning hypothesis (Calculate breakeven and cash flow forecasting)</li> </ul>	<p>perceived functionality of the project</p> <ul style="list-style-type: none"> <li>• Coherence and pertinence of the financial indicators</li> </ul>
<p><u>Phase 4:</u> Project delivery and balance sheet (hypothesis validation, business plan presentation, entrepreneurial pre-project action plan and experience feedback)</p> <p><u>Deliverables phase 4:</u></p> <ol style="list-style-type: none"> <li>1) Negotiation simulations sessions (commercial, financial, and managerial negotiations)</li> <li>2) Project presentation</li> <li>3) Business plan report</li> </ol>	<ul style="list-style-type: none"> <li>• Capacity to evaluate project's constraints</li> <li>• Capacity to prepare a negotiation plan and mastering negotiation phases</li> <li>• Capacity to reflect regardless of the entrepreneurial choice, decision made; strategy reorientation at an individual level and as part of the project itself</li> <li>• Capacity to present orally all the deliverables and project future perspectives</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneurial project legal status coherence with objectives and constraints</li> <li>• Games analysis and debriefings</li> <li>• Coherence of the project with decisions made</li> <li>• Economic feasibility and technological credibility</li> <li>• Capacity to convince the evaluation jury about the pertinence of the project</li> <li>• Quality of the written presentation project memo</li> </ul>

It is interesting to notice that, for the different phases, except for phase one, there is a kind of inarticulateness among the deliverables, the evaluated competency, and the evaluated topic. The study of the manual of the FIE case study and participatory observations indicates that, for phase one, deliverables are first a synthetic document about concepts related to an entrepreneurial project. The aimed competency is to elaborate and write a synthetic document explaining concepts such as enterprising, business plan, strategy, competitiveness analysis,



and entrepreneurial project transformation. Consequently, what is assumed from this competency is that students should understand and explain the different concepts related to the process of entrepreneurship, which suggests that this phase is relatively coherent where students are evaluated according to their understanding and capacity to explain the basic concepts of entrepreneurship as a process. Literature review evaluation is used also, which can be considered pertinent when supported by the oral evaluation by the teachers.

A jury, which makes major evaluations in a short period of time, is composed on average of ten professionals, where you find, in the best case, two entrepreneurs and in major cases not even one entrepreneur as a member of the jury. These project evaluations employ a large and varied criteria related to the degree of competency acquisition.

The project review presentation is an example of a competency targeted by the programme's deliverables, where students are supposed to know how to analyse the applicable functionality of the project in the real market. However, the degree of competency acquisition is evaluated according to the capacity to create and present an innovative project in front of an academic jury.

This section provides some information about the difficulty involved in measuring the effectiveness of an entrepreneurial learning programme, especially when it is related to academic deliverables instead of factors related directly to venture creation, and when it is evaluated according to venture creation success and academic deliverables. However, findings also point out the pertinence of a variable such as "competency evaluation" as an immediate criterion of evaluation.

## **4.8 Synthesis of the findings**

In this final section of this fourth chapter, a synthesis of the findings according to the central indication and the complementary nature of each finding are presented, starting from the entrepreneurial intentions that probably influence competency acquisition effectiveness, which supports venture creation. This is followed by the identification of student positions in terms of venture creation phases, and their influence on competency acquisition, and finally the amount and the type of learning retention, which occurs through competency acquisition, is discussed. The Neck et al. (2014) teaching model was used to identify the evaluation criteria, which helps to evaluate the level of competency acquisition in the frame of our FIE case study. Coherence between the level of competency acquisition and the evaluation criteria

seems to be crucial in order to measure the effectiveness of an entrepreneurship education program.

According to the results of our action research, it may be ambitious to say that there is a cause-and-effect relationship between intentions and venture creation. Students expect to acquire different types of competencies, especially in the beginning of the curriculum where the students' venture phase projects may play a role in this divergence of targeted competencies by students. Indeed, we can simply say that **the more a competency is experienced in the frame of a set of practices, the more this competency is identified by students as being important, and the more they focus on the competency practice, the more they master it, and the more they apply it.** A final idea about these findings is that the evaluation criteria, which are measured according to academic deliverable standards, do not provide the required accuracy to measure the degree of effectiveness of competency acquisition.

Findings show that **students' degree of competency acquisition, in the frame of an entrepreneurship education program, is strongly based on the level of practice of the competencies, and how students reflect on their own learning.** The FIE case study research implies that it is not difficult to make it possible for students to get high scores in the context of an entrepreneurial education curriculum.

However, it is challenging to develop competencies that are effective in an entrepreneurship journey, when you have students with different venture projects, and in different phases of development of their venture projects. The low rate of venture creation shows that a **focus needs to be made on some specific competencies, such as problem solving, networking, communication, and reflection;** a particular teaching model is also necessary to maximize practice; finally, a coherent evaluation scheme is required as well to measure student learning retention.

## Chapter 5. Discussion

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### 5.1 Introduction

In the previous chapter, the main findings and discourses concerning factors that may have an impact on the effectiveness of an entrepreneurial learning program were analysed. Drawing on Neck et al. (2014), the factors that were perceived by students as having the most impact on their level of learning retention have been portrayed. A strong argument has been made that **the main practical pillars on which the degree of learning retention is built are the notion of method and process of learning, as well as learning retention through practice of competencies.**

This chapter begins with discussions on various factors that were identified as impacting student-learning effectiveness the most, complemented by the discussions' conclusions. Following this, contribution to theory and professional practice are drawn on, highlighting the proposed learning models that may be tested for further contexts and research. After that, drawing on personal reflections, the concentration is on addressing the aims and objectives, and on fulfilling the research questions. Finally, a conclusion for the study is formulated, emphasising the argument of the importance of practice in entrepreneurial learning and its implications in making students think, act and reflect entrepreneurially. The purpose of this thesis has been to understand how investigating students' perceptions during their learning, and analysing the teaching materials used, can facilitate development of entrepreneurial competencies. To investigate this purpose, three research questions have been posed:

**RQ1:** Which skills and competencies must be targeted in entrepreneurship education?

**RQ2:** How could action learning and practice-based learning be combined to elaborate a more efficient learning model? and

**RQ3:** What are the profiles and roles of role-sets (pedagogic teams) in charge of the delivery of the entrepreneurship education program?

This chapter will propose an understanding of how entrepreneurial competency development can be facilitated. The research questions are discussed, starting with the entrepreneurial intention to be developed, followed by competency development facilitated through interaction, and finally how the role-set factor can enable the development of entrepreneurial

competencies. This implies answering the research questions in the following order: RQ1, RQ2 and RQ3.

## 5.2 Discussions

### 5.2.1 Entrepreneurial competencies to learn

The discussion is structured around a set of propositions. In answering RQ1, there are primarily three specific student entrepreneurial competencies involved, respectively, according to Boyles (2012) ‘meta’ competencies: social, cognitive and action-oriented **communication and collaboration for social competencies; problem solving and reflection for cognitive competencies; and finally generating deliverables for action-oriented competencies.**

This section aims to contrast discussions related to RQ1, which concerns competencies that support learning retention in entrepreneurship education. Entrepreneurship education is illustrated as a transitional space connecting students to the “marketplace”, increasing student awareness of a broader “world of work”, and supporting employability (Berglund, 2013; Rae, 2007).

The results of this study’s analysis suggest that the levels of overall enterprising tendency and the levels of its components, particularly intention and entrepreneurial competencies, vary among students across the analysed FIE case study. These findings contribute to the practice of entrepreneurial learning in general and specifically in the Algerian context. Unlike previous similar studies (Beggat, 2016; Boukhari, 2016; Boyles, 2012; Ghat 2019; Koubaa & Sahibeddine, 2012) these findings indicate differences between the analysed competencies and the context of targeted learning goals. Nevertheless, in the case of this thesis, the analysed competencies were more heterogeneous and more related to business management competencies as promoted by learning materials. On the other side, in the literature review, Boyles’ (2012) work studies the emphasis on the existing similarities between entrepreneurial, social, cognitive, and action-oriented competencies, with “21st century” knowledge, skills, and abilities (Autor, Levy, & Murnane, 2007; Boyd & Vozikis, 1994; Cavanagh et al., 2006; Goldin & Katz, 2008; Ewing Marion Kauffman Foundation, 2007; Pink, 2008; Porter, Ketels, & Delgado, 2007; Scherer, Adams, & Wiebe, 1989; Wagner, 2008).

The findings of this study focus on the complexities of competency acquisition, as it is practiced in an educational setting as an instrument for entrepreneurial learning. Shifting the analytic regard from individual reflections to a broader notion of effectuation illuminates how competency practice, as a pedagogical activity, evoked different perspectives of learning retention, with different modes for gaining legitimacy and facing uncertainty (Middleton, 2010). In the FIE case programme, a wide range of entrepreneurial competencies, such as financial management, business modelling, creativity, autonomy, authenticity, and taking responsibility, etc., were highlighted by pedagogical materials and promoted by pedagogical teams as being what it takes to succeed as an entrepreneur. Consequently, establishing entrepreneurial legitimacy could be granted to students who were able to show that they developed autonomously through their awareness and mastery of competencies that contribute to venture launch. Hence, legitimate learning in the immediate FIE programme community was characterised by a sense of reproduction, assimilation, and compliance. Handing in homework, lectures, PowerPoint presentations and assignments to be evaluated, and receiving grades and project reviews were all markers that evoked expectations of certain forms of behaviour, social relations, and forms of effectuation. Even though students demonstrated venture creation intentions, they felt trapped in a conflict between performing expected behaviours as students, and performing behaviours expected of potential entrepreneurs. Therefore, classroom practice still disconnected the worlds it was supposed to bridge, since legitimate involvement in the imagined entrepreneur community required an undoing of legitimate effectuation in the immediate practice context.

Indeed, various categories and types of competencies that are supposed to make entrepreneurs learn, think and act more entrepreneurially are found, whether in order to create a venture or assume an intrapreneurial posture within an existing organisation.

In the present FIE case study, the same trend of various aimed competencies which are supposed to be developed and mastered by students was observed; however, a few competencies were developed and mastered which resulted in venture creation, and demonstrated usefulness of learned competencies, thanks to practice. **Competencies that were perceived by students as mastered were problem solving, communication, collaboration, networking, and reflection on action, especially actions that were undertaken in the framework of product and service market validation.** It is interesting to notice that all competencies perceived by FIE students as useful and contributing to venture

creation were already identified and mentioned in literature review. Nevertheless, it was determined that there are too many competencies that are promoted as contributing to thinking and acting entrepreneurially (Gimeno, Folta, Cooper, & Woo, 1997; Shane, 2000, Aldrich & Zimmer, 1986; Baron & Markman, 2000; Burt, 1992, Boyd & Vozikis, 1994; Chen et al., 1998; Markman et al., 2002; Scherer et al., 1989, Gilad, 1984; Timmons, 1978; Ward, 2004; Whiting, 1988, Boyles, 2012). Although these competencies are pertinent, the fact that students are different individuals, with different venture ideas and with different venture development phases (Lumpkin, Hills and Shrader, 2004) means that they may have various learning objectives. This potential mismatch between the theoretical entrepreneurial learning objectives and the students' individual learning objectives logically leads to asking the following questions: which competencies are mandatory, and which constitute the basis of what any given entrepreneurship learning programme is aiming to achieve? The various propositions in terms of entrepreneurial competencies exposed and captured by Boyles (2012) denote and justify the different competencies that were identified in the FIE case by students as being pertinent for their venture creation. On the other side, the FIE case's pedagogical structure showed, as well, various competencies to target. It is apparent that it is necessary to take into consideration specific competencies, such as problem solving, communication, networking, and reflection, in order to succeed in an entrepreneurial education program. This reinforces the need to focus on particular competencies, such as those identified in the findings, and generally argued by Boyles (2012), in the tradition of works of Aldrich & Zimmer (1986) for social competencies, cognitive competencies with Venkataraman (2000), and action-oriented ones with Sarasvathy (2006).

Collaboration, communication, problem solving, reflection and generating deliverables are important in all fields of entrepreneurship and management practice, and study according to findings and the literature, particularly Boyles (2012), who synthesised the development of such competencies. Whether students study medical sciences, engineering, business, art, or industry, entrepreneurial competencies are needed to systematically build and develop their professional careers, constantly educate themselves and innovate, and build their own professional identities. Generally, entrepreneurship-learning programs teach students the venture creation process and managerial skills. Students who already have strong technical skills then combine them with sufficient entrepreneurial competencies would have a particularly good prerequisite to create and market value by venture creation.

### **5.2.2 Entrepreneurial learning settings**

In answering RQ2, interaction between the individual student and the teaching material, particularly the process and the method, facilitates the development of entrepreneurial competencies by learning through practice. Neck et al. (2013) describe practice as introducing learning situations based on doing that enables students to think, act and reflect entrepreneurially, even early on in their entrepreneurial learning curriculum. Indeed, practice of play, practice of creation, practice of empathy, practice of experimentation and practice of reflection (Neck et al., 2013), with a focus on action-learning reflection (Marquardt, 2012), are proposed to facilitate learning and acquisition of competencies, such as collaboration, communication, problem solving, reflection and generating deliverables. This combination of practice-based approach (Neck et al, 2013) and action-learning reflection (Marquardt, 2012) provides a compromise about entrepreneurial learning as a process, which is supported by a method.

Students should be aware of what they need to learn during their entrepreneurship curriculum. Learning by experiencing seems to increase student awareness about learning. Awareness about learning is defined here as self-reflection about experience, as Kolb (1984) defines experiential learning as knowledge created through the transformation of experience.

Interlinking the empirical results of this study with established literature allows for additional insights to emerge. While individuals are thought to learn entrepreneurial competencies because they possess uniquely different forms of knowledge and motivation, this study confirms that learning settings play an important role at the start of the process of acquiring entrepreneurial competencies and skills. This finding is consistent with the view (Kolb, 1984) that emphasises a focus on the process of learning rather than outcomes of learning, where the knowledge is created and recreated through experiences.

Practice of experience calls for continuously improving multiple competencies to manage ever-changing circumstances, which is typical of entrepreneurial environments, the majority of which contain ambiguous, unpredictable, and often stressful characteristics (Middleton, 2010). Moreover, entrepreneurial learning encompasses method and process whereby new knowledge continuously emerges to resolve uncertainty inherent in each stage of the venture creation phase and in student motivation. The relevance of practice in entrepreneurial learning

within different student's objectives and motivations is confirmed. **This would suggest that a major factor influencing the process of entrepreneurial learning retention, and development, which leads to venture sustainability, includes maintaining high levels of competency practice throughout which the students think, act, and reflect entrepreneurially.**

The relationship between entrepreneurial learning as a process and method apparently has been found to be refereed by strategy use (Vaicekaускаite et al., 2018) which reflects the generative capability of predication, planning, optimisation, competitiveness, creation, small actions and iterations, as well experimentation and collaboration, where cognitive, social, and action-oriented competencies and sub-skills are organised into integrated courses of action. Process is emphasis on the “input” and “output”; distinctively, a method is more oriented to practice. Entrepreneurial learning is not enough to make input; creativity is needed for ideation and problem solving, and afterwards students can be expected to think, act, and reflect entrepreneurially. It is discernible that effective future entrepreneurs need to be skilled in both method and process.

### **5.3 Influence of the role-set (pedagogic team) in developing entrepreneurial learning**

In answering RQ3, “What are the profiles and roles of role-sets (pedagogic teams) in charge of the delivery of the entrepreneurship education programme?”, it seems evident that interaction between students and their closed environment, particularly with role-sets, facilitates teaching efficacy. Implementing various practices is essential in order to facilitate the development of entrepreneurial competencies. Role-sets need to deliver the entrepreneurial learning programme as a method, using a set of practices (Neck et al., 2013) and making sure that students reflect on their own learning and their own objectives, and then stick to the process of the program deliverables, as was the case in FIE.

Pedagogy for future teachers, coaches, and mentors should be enterprising in developing various projects, activities, and innovations in the education process; in creating challenging and stimulating classroom atmospheres; and, finally, in practicing and stimulating entrepreneurial competencies among students. Consequently, students of applied technologies would then be able to utilise entrepreneurial competencies in inventing innovative solutions, starting new projects, or in some cases actually operating business ventures.



## **5.4 Conclusions**

In this thesis, issues of an entrepreneurial learning programme in the context of higher education have been investigated, where the expected result of the entrepreneurial process is the creation of a new venture. Creation is dependent upon the subjective action of the entrepreneur bearing uncertainty. With the interest of investigating students' learning retention, and the impact of pedagogic materials, as well as the use of teams, a systemic perspective was adopted in order to recognise the most impacting factors, and allow for more or less immediate action on it.

Factors of the environment impacting learning retention have both structural and social components. Structural environmental factors, such as instructional materials and their settings, can be provided to gain focus and time to return on investment. Structural environmental factors may be used to facilitate guidelines or regulations regarding expected competencies to learn, and to further student actions. Social environmental factors, particularly the role-set, may be specifically assembled to address different perspectives determined as important for interactive learning. The reasoning behind this thesis builds strongly upon the understanding that the interaction between entrepreneurial students and their environment contributes to the development of entrepreneurial competencies. However, this thesis has mainly focused on factors that were perceived as pertinent by students, which may influence the development of entrepreneurial competencies through facilitation, thus not addressing individual factors such as traits, attitudes, and other factors leading to entrepreneurial intention. Additionally, Katz (1990) has shown that intention is a poor predictor of actual engagement in venture creation, and Reynolds (1995) emphasises the strong influence of situational factors, such as in our FIE case.

## **5.5 Contribution to theory and professional practice**

### **5.5.1 Contributions to theory**

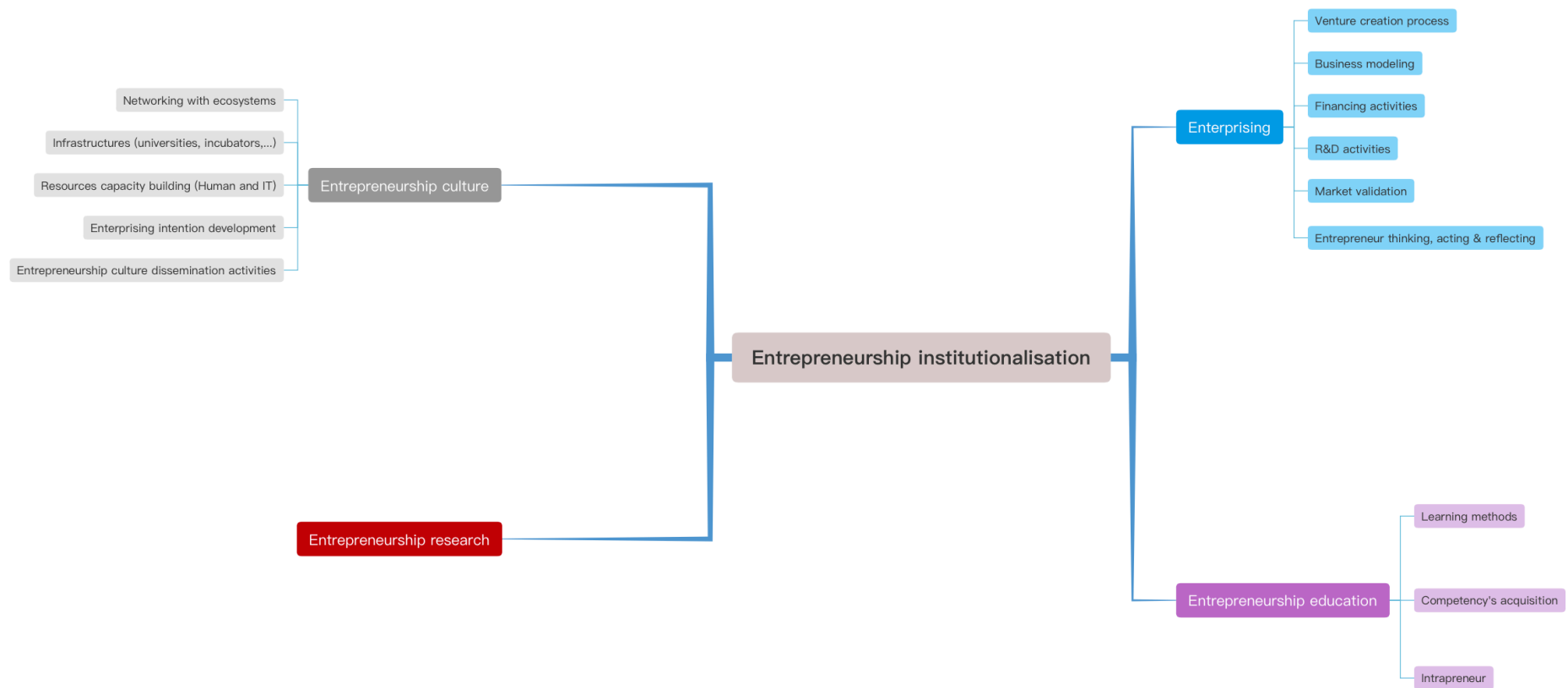
This thesis contributes to entrepreneurial education research by applying a lens to learning retention, conjured by a practice of competency perspective, and its theoretical applications on intention, method, and competency acquisition. Consequently, this study may show entrepreneurial education in a different light, and may also, therefore, provide an opportunity

for increased reflection on how the process of becoming an entrepreneur is assumed and practiced in entrepreneurial education settings. With the view of competency practice follows an interest in learning as a method, and how organised learning environments grant access to competency acquisition and becoming entrepreneurial: thinking, acting, and reflecting entrepreneurially. Indeed, the discovery of patterns in how entrepreneurs think (Sarasvathy, 2008) combined with additional research from Babson (Costello et al., 2011; Greenberg et al., 2011; Neck and Greene, 2011; Noyes and Brush, 2012; Schlesinger et al., 2012) has allowed for reflection on the possibility that enterprising (Bjerke, 2013) can no longer be taught as a process but rather must be taught as method (Venkataraman et al., 2012). The method of teaching entrepreneurial competencies requires the development of a set of practices that can help students think more entrepreneurially, which, in turn, can empower and motivate students to act and reflect more entrepreneurially.

The level of analysis shifts from considering entrepreneurship culture institutionalisation to distinguishing entrepreneurial education (Fayolle, 2016). Consequently, this thesis contributes to the on-going work that seeks to understand the nature of entrepreneurial learning construction and how it relates to the entire entrepreneurship institutionalisation. Indeed, the research presents an alternative mapping on the entrepreneurship research field, as it points to the complexities of entrepreneurship institutionalisation that is more articulated as a process, as argued by Fayolle (2016), in (1) recognising the complexity of the phenomenon under study; (2) producing engaging, relevant and useful research results for all stakeholders; and (3) developing a critical posture in research seeking to gain access to the process of becoming entrepreneurial in an educational setting. Entrepreneurship is a multidisciplinary research field and the different concepts attached to the term “entrepreneurship” may generate confusion. In addition, entrepreneurship is strongly related to practice; consequently, entrepreneurs, researchers, educators, students, and all other players in the entrepreneurship ecosystem should speak the same language in order to satisfy respective expectations.

One of the concrete contributions of this thesis to theory and knowledge is the mapping of concepts in the field of entrepreneurship, which is presented in Figure 5.1 in the form of a mind map (Buzan, 2010). Indeed, the figure presents the different notions related to entrepreneurship, as generated from the literature and interpreted by the author. Mapping the processes involved in entrepreneurship helps to clarify its various complexities, and perhaps could help future researchers in identifying very early on where their study or investigation is positioned. As Fayolle (2016) argued, entrepreneurship institutionalisation is supposed to

enclose all entrepreneurship domains. The main distinctive concepts that have herein been identified, and which gravitate around entrepreneurship institutionalisations, are as follows. First, **entrepreneurship culture dissemination activities** involve working on intention development and collaboration between different actors of the ecosystem. An entrepreneurship higher education curriculum may do the job of teaching students the different concepts of entrepreneurship, including sharing inspiring entrepreneurs' experience, and understanding structural principals, such as legal and financial, of venture creation. The goal here is simply to inspire students and develop their intention, not instigate an immediate venture launch. Measuring intention before and after the curriculum are the key performance indicators. The second concept is **enterprising**, which includes the activities that comprise concerted venture creation efforts. The focus here is on venture creation, specifically its financial structure, business modelling and market validation. From the other side, this concept of enterprising places emphasis on the entrepreneur through the so-called behavioural approach (Gartner and Carter, 2003) (Lewin, 1951). However, the thinking that drives behaviour, the actions generated and how entrepreneurs understand their actions and behaviour are the main contributions to the literature of this thesis. Enterprising does not necessarily focus on the level or type of entrepreneurial learning capacity of the entrepreneur, whether he or she is an experienced entrepreneur, a student, or an unemployed person embedded in a business incubator or accelerator structure.



***Figure 5.1. Mapping of concepts in the field of entrepreneurship***

The third concept is **entrepreneurial education**, which is the targeted research story of this thesis; here the interest is upon the method of learning and the effectiveness of competency acquisition. Entrepreneurial education supposes that learners are already animated by enterprising intention.

Last, but not least, is **entrepreneurship research**, which envelops all current and future concepts of entrepreneurship from its epistemological and ontological perspectives. Current studies of entrepreneurship tend to focus on the performance of the entrepreneurial venture as the primary dependent variable. Even the literature on traits, knowledge acquisition learning, and the use of general heuristics seek to explain how these factors influence the performance of the firms that entrepreneurs create. The view from entrepreneurial competencies that support venture creation, however, turns the spotlight on the performance of entrepreneurial learning education, sometimes in coherence with, but at other times in opposition to, the performance in terms of venture creation. Entrepreneurs, in current scholarship, are seen as instruments in the birth and growth of firms. Entrepreneurial competency acquisition proposes an instrumental view of the entrepreneur and venture creation instead.

Finally, this research answers calls for a critical assessment of general assumptions inherent to enterprise education research and practice (Fayolle, 2013; Fayolle, et al., 2016). The research emphasises the complexity of entrepreneurship, and how its theorisation and practice create a complex learning environment. Consequently, focusing on entrepreneurial education should allow for student acquisition of the entrepreneurial competencies necessary to evolve skilfully in enterprising schemes.

### **5.5.2 Contribution to professional practice**

Peter Drucker (1985) said, “Entrepreneurship is neither a science nor an art. It is a practice.” Thanks to the relevant accumulated knowledge since this quotation, entrepreneurship, while it may not yet be a science, does warrant the application, as Fayolle (2014, p.15) has argued, of various types of disciplinary sciences. This includes, on one side, the sociology or the economics of entrepreneurship and, on the other side, the emergence of entrepreneurial scientific disciplines, such as entrepreneurial sociology or biology. It is concluded that, when teaching individuals to act and think entrepreneurially, the teaching method should be based on practice, consequently, hereafter, the word “entrepreneurial” will be used in this thesis

instead of “entrepreneurship” when it relates to a learning programme that targets venture creation.

In previous chapters, it was mentioned that models that will help to improve entrepreneurship teaching effectiveness would be proposed in this thesis. Combining findings, literature review, and the author’s experience as a serial entrepreneur has brought to light ways to measure the intention and engagement of students aiming to enrol in and assume an entrepreneurial learning experience, with venture creation as the ultimate goal. Reflections upon this subject have driven the brainstorming process as to how to put candidates that want to enrol in an entrepreneurial curriculum in a situation that would allow academic staff to evaluate the degree of intention and self-efficacy. This questioning and reflection lead directly to the concepts Stephen R. Covey presents in his book, *The 7 Habits of Highly Effective People*. With penetrating insights and pointed anecdotes, Covey presents a holistic, integrated, principle-centred approach for solving personal and professional problems. He reveals a step-by-step pathway for living with fairness, integrity, honesty, and human dignity principles that give us the security to adapt to change, and the wisdom and power to take advantage of the opportunities that change creates. *The 7 Habits*, which include 1) striving for a healthy work-life balance, 2) being proactive, 3) aligning one’s vision for the future and one’s actions, 4) prioritising work tasks, 5) including relationship building in negotiations, 6) listening before giving advice, and 7) keeping in mind that the contributions of many will far exceed those of any individual, have become so famous because they have been found to be, as the book title claims, very effective. Indeed, Covey’s concepts correspond favourably to behaviours, skills and more importantly competencies that entrepreneurial learning aims to develop, such as problem solving, taking advantage of opportunities, communication, and collaboration.

Also in his book, Stephen Covey talks about the concepts of “circle of concern” and “circle of influence”. The “circle of concern” incorporates the wide range of concerns you have in your work and life, including health, family, finances, national debt, etc. Everything you include inside the circle is of concern and matters to you, and everything outside is of little or no concern to you.

The challenge with the circle of concern (see Figure 5.2) is the realisation that some of the things that create concern cannot be controlled, and some are controllable. For example, being concerned about the health of a family member or the economy is normal, but can anything really be done about it on an individual level? Therefore, it is important to identify one’s circle

of influence within one's circle of concern.

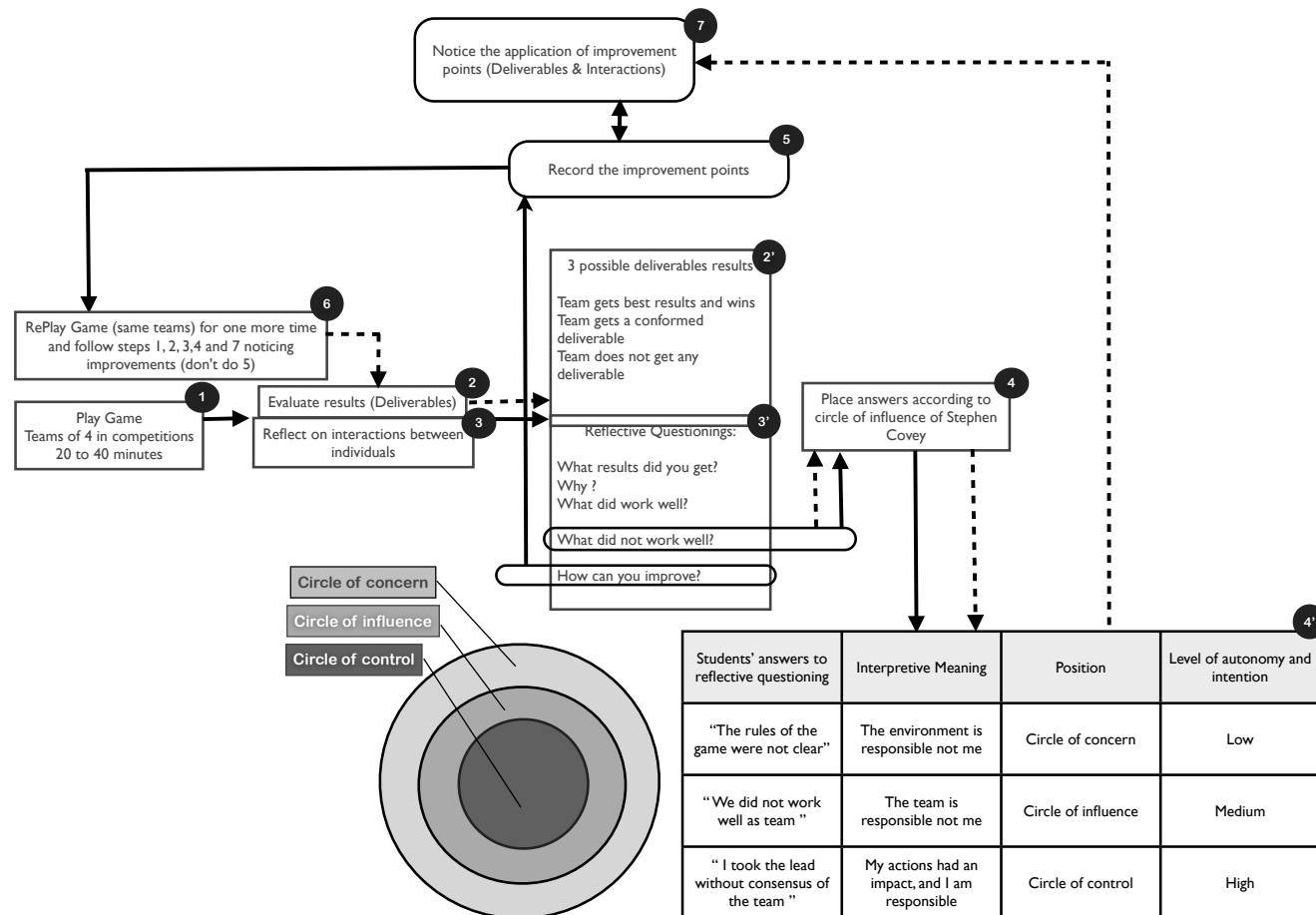
Indeed, confronting Covey's structure with findings suggests that growing entrepreneurs perceive their close environment differently. Some entrepreneurial students believe that the environment almost always influences their degree of success, and others believe the opposite: that they have the latitude to anticipate or react positively to the challenges provided by the environment.

So, the circle of influence includes that which is both concerning and resolvable. For example, climate change may be of concern (i.e., circle of concern), but how much can actually be done about it (i.e., what is one's circle of influence)? Jane Taylor (2013) added the circle of control within the circle of concern and the circle of influence, which makes the power of choice clearer.

Jane Taylor (2013) argues that in order to acquire new habits and change behaviour, it is suggested to invest some time reflecting by questioning in order to evaluate the perception of the environment in which one evolves. The discussion of the subject of intention and how it impacts learning is structured around a set of propositions, such as the necessity to measure and secure intention in order to focus on learning.

The first proposition made here regarding this is that intention hooking allows for a better focus on competencies, so intention is a kind of preliminary foundation to build on before pursuing competencies, which any entrepreneurial learning programme focused on entrepreneurship aims to teach.

The second proposition is to put growing entrepreneur candidates who wish to enrol as students in an entrepreneurial learning curriculum in exercises or workshops, where they will practice play and reflection. The proposed protocol leans on the concept of practice of play and reflection (Neck et al., 2014), practice of reflection from its action-learning perspective (Marquardt, 2000), and finally the circles of concern and influence (Covey, 1994).



Stephen Covey's circle of concern, circle of influence and circle of control improved by Jane Taylor

***Figure 5.2. Intention and autonomy evaluation protocol***



The proposed protocol (Figure 5.2) is based on the practice of a gameplay proposed by Neck et al. (2014, p.125), mentioning “the marshmallow tower which was introduced by Bradley George in the book *Teaching Entrepreneurial Practice-Based Approach*” (Neck et al., 2014). There is a range of useful gameplays in this book, which place emphasis on entrepreneurial behaviours. The first operation introduces the gameplay by putting candidates in teams of four. The gameplay goes on for between 20 to 40 minutes, with teams competing against each other in order to produce deliverables. After a short break, the second operation is deployed and involves the evaluation of the deliverables results. Some teams will have, for example, the tallest tower, some others will have a shorter tower, and others will not have any tower.



**Figure 5.3. Marshmallow tower gameplay deliverables**

The debriefing is done in phase 2 of the protocol, where evaluators notice the deliverables of each team and ask the reflective questions (see Figure 5.2, phase (3')), related to the deliverables. It is important to check the degree of awareness of the candidates about the performance they accomplished. Then evaluators ask reflective questions about the interactions, organisation, and collaborative dynamics. The most important questions are “What did not work well?” and “What can you improve?” Evaluators note the results and place them according to the model of circle of influence, as it is shown in Figure 5.2, phase (4) and (4'); consequently, evaluators will have three categories of awareness: low, medium, and high levels of intention. In phase 5, evaluators note in a flipchart the improvement points related to the improvement points that were generated by candidates. In phase 6, the gameplay is played again, and attention is paid as to whether the improvement points were implemented in terms of deliverables and interactions, and again phase (4) and (4') are applied, to see on whether candidates still engage in the same zones in terms of circles of concern and control. In conclusion, the more responsibility candidates (students wishing to participate in the entrepreneurial learning curriculum) take to think, act, and reflect on their zone of concern (circle), the more commitment and intention they

### **5.5.2.1 Competencies to target in an entrepreneurial programme**

This section provides complementary elements about the factors that impact learning retention, however the main focus of the discussion here is related to the suggested mandatory competencies to be targeted in an entrepreneurial learning program, and those competencies that provide significant effects in terms of thinking, acting, and reflecting entrepreneurially for growing entrepreneurs (students enrolled in an entrepreneurial learning programme).

The third proposition concerns the question of competencies that must be targeted in entrepreneurship education in order to maximise chances for venture creation. In contrast, literature on entrepreneurship and entrepreneurial learning suggests that it is the university activity that organises learning, in many cases, for entrepreneurship intention and culture development purposes. The literature also emphasises the institutionalisation of entrepreneurship research, and teaching as an undeniably good thing for the members of the research community, as it implies the legitimisation of particular research topics and research practices, the emergence of norms for developing and publishing research, as well as the creation of structures that provide employment opportunities and a conducive environment for pursuing research (Riot and Fayolle 2016). However, entrepreneurial teaching faces some challenges that were identified by Lautenschläger (2011). In his article “Seven Arguments against Entrepreneurship Education”, he argues that there is a “lack of uniformity in objectives, content, and pedagogies”, knowing that scholars have presented a variety of different concepts about EE, and their heterogeneity is abundant. The obligation to have absolute uniformity is not necessarily a valid point; however, the need for mandatory objectives, content and pedagogies to be implemented in order, at least to measure the effectiveness of such a learning program, is understandable. This factor of measurement of effectiveness and the impact of entrepreneurial teaching is also another argument against teaching entrepreneurship. Consequently, the other argument is “lack of measurement in overall impact”. Indeed, there are more tangible effects, i.e., economic outcomes measuring entrepreneurial success, beneath this propensity of start-up activity, survival rate, new venture performance and market share, employment and sales growth, and economic development. In fact, McMullan, Chrisman, and McMullan (2001, p.38) stress that the objectives of EE should be “primarily economic” and as such “appropriate measures would include businesses started or saved, revenue generation and growth, job creation and retention, financing obtained and

profitability”. Of course, both types of effects cannot be judged separately; rather there exists a linkage spanning from the pedagogical to the economic impact. On the other hand, there are recent studies that create doubt as to the effectiveness of entrepreneurship education. To give an example, Oosterbeek et al (2010) analysed the impact of an EE program in the Netherlands. Their results revealed that the intended effects failed to appear: the effect on student entrepreneurial skills and intention was insignificant, even negative, respectively. Thus, although a variety of practitioners, educators, and policymakers recite the alleged benefits of EE like a tune, the conviction of the positive outcomes seems often more ideologically than empirically grounded, as Peterman and Kennedy (2003) alert. For this reason, the research does not focus on measuring entrepreneurship, although this variable has been traced; rather, the focus is on the skills identified as contributing to acting, thinking, and reflecting entrepreneurially. To this end, only five mandatory competencies that must be targeted, regardless of the learners’ location and culture, are proposed.

These competencies are respectively categorised according to Boyles (2012) model: communication and collaboration for social competencies, problem solving and reflection for cognitive competencies, and generating deliverables for action-oriented competencies.

The author is not saying that we should not teach other competencies, whether business management skills such as strategic decision-making or financial management. He prefers to emphasise the need to focus on communication, collaboration, problem solving, reflection, and producing deliverables by putting students in a conscious state of mind that will allow them a better chance of acquiring these competencies. Studies (Frederiksen, 2017) revealed a possible tendency in education founded on a broad model of entrepreneurship to replace the heroic Schumpetarian entrepreneur with a new “hero”. Therefore, entrepreneurship education is organised not to facilitate the transformation of an entrepreneur, but to produce an authentic, self-directed, autonomous, and fulfilled new graduate student capable of dealing with the complexities of the environment, and possibly another cultural model that is difficult, but necessary, to reject in order to open access to entrepreneurship for all, as Gibb (2002) suggested. Therefore, none of this is to say that start-up intentions, or the actual creation of a new business, are not ultimately good and appropriate goals for entrepreneurship students. However, it does suggest that more immediate learning goals related to the likelihood and success of entrepreneurship may be better measures of success for undergraduate entrepreneurial programs. These outcomes represent competencies that will be useful in both gaining employment in the 21<sup>st</sup> century economy, as well as starting a new venture. Outcomes

of this model (see Table 5.1) represent learnable and measurable knowledge and competencies that can more effectively demonstrate the value and success of an undergraduate entrepreneurial programme. Of course, the introduction of a theoretical and conceptual background for growing entrepreneurs (entrepreneurial students) will be necessary. Then, the progress of competencies acquired by students will be tracked back within a frame of practice, and not just by the degree of memorisation of the theoretical principals. Indeed, emphasising “more”, in the sense of practising every day and reflecting continuously, will help students to master these basic competencies that role-sets aim to engender growing entrepreneurs that think, act, and reflect entrepreneurially. And for that, a model is herein proposed that is articulated around the approach for tracking the degree of competency acquisition through a reflective process on competencies practice. This is called “competency acquisition protocol” (CAP) and is based on various and complementary models. The first principal is related to the practice of action learning circles, based on (Marquardt, 2000), which is used by the World Institute for Action Learning, and has already shown significant effectiveness in almost 30 countries. With a principal emphasis on coaching as a strong process for problem solving and team collaboration, action learning is a process of insightful questioning and reflective listening. Action learning tackles problems through a process of first asking questions to clarify the exact nature of the problem, reflecting and identifying possible solutions, and only then taking action (Figure 5.4). Questions build group dialogue and cohesiveness, generate innovative and systems thinking, and enhance learning results (<https://wial.org/action-learning/>).



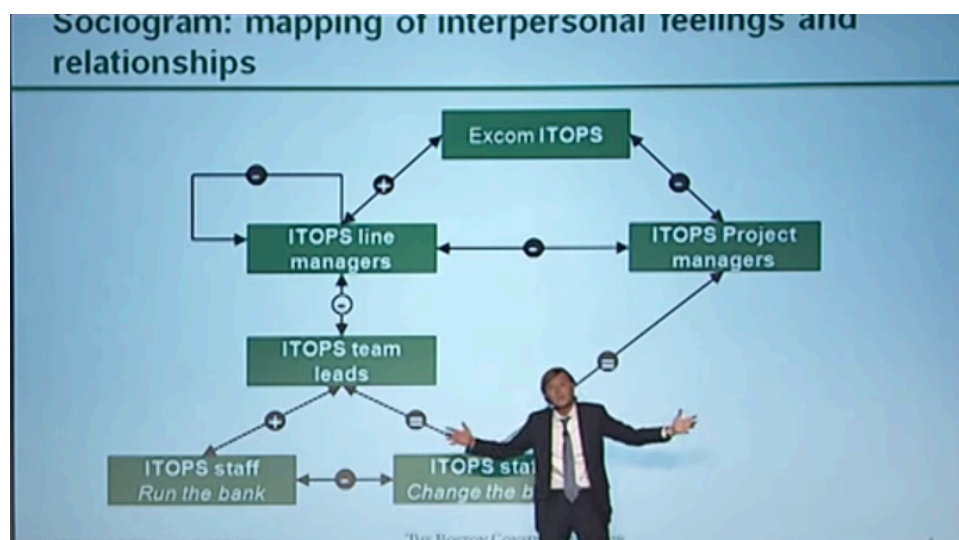
***Figure 5.4. Action learning components.***

***Source: <http://www.wial.org>***

The second principal emphasis is on the model proposed by Yves Morieux, the managing director of the Boston Consulting Group. His model is called “smart simplicity”, which is articulated around managing complexity and measuring the degree of collaboration through the “sociogram” tool. This powerful tool tracks back the perception of collaborators. The

variable of measurement is based on three options: negative (-) collaboration type, positive (+) collaboration type and indifferent (=). “*The soft benefits are where smart simplicity can provide the most help, and these may ultimately be the more powerful levers to unlock productivity, especially as services and “people businesses” come to dominate the global economy. The ability to share data, communicate instantaneously, and quickly build and modify digital applications favours collaboration and lower transactional costs*” (Boglioli, Lyon, and Morieux, 2016).

Smart simplicity is built around “smart rules” that derive from game theory, sociology, observation, and proven application. They allow individuals to make critical judgments, balance complex trade-offs, and come up with creative solutions to new problems. Simply stated, examples of collaboration and problem complexity measurement are present in Figure 5.5, which shows the different options perceived by teams. The (-) sign means negative collaboration, (+) is positive collaboration, and (=) is indifferent collaboration. This last option is the one that shows that a team member is either not aware about his weakness in terms of cooperation, or he is not collaborating on purpose. Indeed, this tool helps to measure the degree of competency of collaboration of teams and individuals as well as, from this author’s point of view, can practically be applied to tracking entrepreneurial competencies.



***Figure 5.5. Example of a sociogram (Yves Morieux, 2015).***

***Source: <http://www.usievents.com>***

The third principal is based on the works of Sarasvathy, and the concept of effectuation. Sarasvathy (2003, p.24) said, *Effectuators do not seek to avoid failure; they seek to make success happen. This entails recognition that failing is an integral part of venturing well.*

*Through their willingness to fail, effectuators create temporal portfolios of ventures whose successes and failures they manage – learning to outlive failures by keeping them small and killing them young, and cumulating successes through continual leveraging. In an effectual universe, success/failure is not a Boolean variable and the success/failure of the entrepreneur does not equal the success/failure of the firm.* Effectuation is a concept, which is strongly related to action, where performing entrepreneurs instead of less performing ones try to evaluate the available resources that are under their control. This idea reinforces the utilisation of Taylor's (2013) circles of concern, influence, and control model. After the evaluation of available resources, performing entrepreneurs then plan and, in a collaborative scheme, implement actions, and furthermore evaluate very early outputs to make needed adjustments, again with proper, available resources or ones generated by collaborative partners.

Sarasvathy's effectuation principal again is emphasised by highlighting the following quote: *Entrepreneurs manage – learning to outlive failures by keeping them small and killing them young, and cumulating successes through continual leveraging*, Sarasvathy (2003, p.24). As a practitioner, this author uses the "AGILE" method in coaching as well as in professional training, and Sarasvathy's quote, although it is in the frame of entrepreneurship research field, is analogous in some ways to the AGILE method. AGILE is defined as the ability of an organisation to effectively immerse itself in its ecosystem, which is understood to be all the entities that interact in a technological, economic, societal, and cultural environment. The structures concerned therefore systematically involve all stakeholders in the development of new products or services in order to accelerate understanding of the various needs, and thereby develop an innovative and value-added creation that specifically meets these needs. To reach this level of maturity in terms of innovation, organisations must adapt their strategies, business models, projects, and even redefine their respective roles within their "ecosystems", through iterations on consecutive actions (Morris et al., 2014).

One of major principals of the AGILE method is that project deliverables are generated from actions in the field. Products or services (deliverables) are tested very early with clients and other stakeholders, in what is called a "minimum valuable product". According to stakeholder feedback, modifications and adjustments are done by iterations in presenting results to clients, even if some deliverables are perceived by the providers to be "failures", i.e., they do not match the needs of the clients. However, this method allows for optimisation of control on near-future deliverables. Operational agility mostly refers to implementing AGILE and LEAN

methods and practices that allow the start-ups to properly orchestrate their existing pools of resources, adapting them to external complexities (Ghezzi, Cavallo, 2018).

Consequently, the CAP “competency acquisition protocol” model is a multidisciplinary-based model that allows for the measurement of the performance of growing entrepreneurs separately from their venture idea or project (dependent on where the venture is located in terms of development phases (Lumpkin et al, 2004)). The model allows a continuous measurement of the level of competency acquisition and makes necessary adjustments in terms of teaching settings. This permanent measurement and tracking of the degree of acquisition of competencies by students is a stronger evaluation criteria of entrepreneurial learning programme effectiveness than waiting for a number of years to see whether students are able to launch a venture or not, knowing that there are plenty of variables that are not controllable and, moreover, are not accessible for observation or measurement.

Table 5.1 includes the mandatory suggested competencies to target in an entrepreneurial learning programme, specifically mentioning communication and collaboration for social competencies, problem solving, and reflection for cognitive competencies, and generating deliverables for action-oriented competencies. The table also provides the recommended approaches for tracking the degree of acquisition of each competency by growing entrepreneurs (students enrolled in entrepreneurial learning programme). Tracking and evaluation approaches are based on the action learning multidisciplinary-based tools explained above (Marquardt, 2000), the sociogram (Morieux, 2015), and effectuation (Sarasvathy, 2003). Evaluation of the degree of acquisition of competencies is done through practical approaches, such as questioning students about what was done well in terms of skills needed to perform efficient communication, such as “speaking with fact”, which could be described as “expressing negative emotions in a benevolent way”. This process of questioning and self-reflection allows this mind-set of self-awareness about the degree of performance or mastery of competencies to be captured. The other important question emphasises the skills that were done well and need to be improved. Students are confronted and familiarised with peer feedback, and identify a clear and targeted skill to improve in an agreed timeframe, and then an evaluation is done with peers to see the improvement in skill performance and finally the degree of competency acquisition. This approach is supported by quantitative measures such as the number of problems solved and the number of deliverables generated with an associated number of iterations. There are also other quantitative measures to be considered, such as the number of professional connections accomplished. The other important evaluation

approach is related to the quality of reflection done by the students. The model suggests measuring the degree of competency practice, and acquisition by the quantity of feedback given by students to their respective peers. It is hoped that this process will push students to engage in giving more feedback, and consequently practice reflection and empathy. It could be interesting to test the CAP model, in the frame of entrepreneurial learning programs in different contexts, and see the trends that could appear in each program, for example: the number of problems solved, the skills that are indicated more frequently as needed to be improved, the number of iterations done for each venture type, etc.

***Table 5.1. CAP (Competency acquisition protocol)***

Entrepreneurial learning program competency types	Mandatory competencies to target in an entrepreneurial learning program	Approach for tracking competency acquisition	Examples of evaluation factors
Social	Communication	Feedback given each day at the end of sessions: what was done well, what was not done well, how to improve?  How long is a communication skill still mentioned as not being well performed?	What worked well? <b>Example: “You speak with facts”.</b>  What did not work well? <b>Example: “Imposes ideas”.</b>  How to improve? <b>Example: “Ask more open questions”.</b>
	Collaboration	Feedback given each week; how is the collaboration between each student and his/her respective peers?	Collaboration type: <b>Negative</b>  Collaboration type: <b>Positive</b>  Collaboration type: <b>Unresponsive</b>  Number of new professional social-connections  How to improve?
Cognitive	Problem solving	Number of important problems identified  Number of important problems treated	Knowledge problem: <b>Information missing to understand or to take action</b>  Action problem: <b>Initiative or/and organisation missing to take</b>



		Number of important problems solved	<b>action</b>
	Reflection	Number of participants in reflection circle sessions	Number of reflective feedback generated for peers  Improvements operated according to reflections generated by peers
Action-oriented	Generate deliverables	Number of deliverables generated, number of iterations done starting from MVP (minimum valuable product)	Feedback generated from client or/and stakeholder tests

## 5.6 Reflections

### 5.6.1 Achievement of goals and objectives and answering research questions

This research focused on the entrepreneurship teaching effectiveness in higher education context, with the aim of studying the phenomenon of the factors involved in entrepreneurial competency development.

This thesis contributes to research on entrepreneurial education with new perspectives on its practice by addressing three research questions: RQ1: Which skills and competencies must be targeted in entrepreneurship education? RQ2: How could action learning and practice-based learning be combined to elaborate a more efficient learning model? RQ3: What are the profiles and roles of role-sets (pedagogic teams) in charge of the delivery of the entrepreneurship education programme?

How learning seeks to engage students in the process of becoming entrepreneurial was explored. The variables studied in the various research questions represent independent factors, which address inquiries of acquisition of conceived entrepreneurial competencies, and how the process of becoming entrepreneurial is practiced in entrepreneurship education.

With regard to the degree of achievement of the goals and objectives of this research, the study is considered to have mainly achieved its objectives, thanks to the demonstration of the

existing gap in terms of entrepreneurship culture among Algerian universities. Indeed, according to the literature review and some evidence resulting from our findings, university entrepreneurship culture is articulated and developed through a set of activities, thus placing growing entrepreneurs (students) in the centre of these activities. The research also showed that those university entrepreneurship activities are closely related to a particular ecosystem where various actors play an important role, such as corporates, financing structures, government, incubators, etc. However, the most important resources operating in these entrepreneurship activities are people: people with expertise, field experience, and networks. The Algerian ecosystem has the potential to benefit from an improvement in the entrepreneurship culture through a clear identification of the various actors, who already play roles in the diffusion of the entrepreneurship culture. On the other hand, capacity building of these professionals must be targeted since they are within the bounds of student interaction.

Considering the aims and objectives of the research and coupled with the study of the phenomenon of entrepreneurship education effectiveness in the Algerian context, the research is believed to have responded positively. Indeed, studying an entrepreneurial programme for a period of four years from different methodological perspectives has significantly helped to understand, and demonstrate the lack of effectiveness of such entrepreneurial higher education programmes, first from the perspective of criteria of evaluation, followed by the importance of identifying intention and engagement of students, then the degree of learning acquisition that contribute to launching a venture, and finally by which settings the programme was operating.

With regards to the research questions, some answers were generated for RQ1, “Which skills and competencies must be targeted in entrepreneurial education?” Answers were provided from the literature review and theory background, namely, the social, cognitive, and action-oriented competencies (Boyles, 2012). Indeed, there is no consensus among scholars and practitioners about the needed competencies to learn in order to maximize chances for entrepreneurial students to launch a venture. However, the thesis proposes basic mandatory competencies that need to be clearly identified as learning objectives in the frame of entrepreneurial learning program. These competencies are social, namely communication and collaboration; reflection and problem solving for cognitive competencies and generating deliverables for action-oriented competencies.

Answers to RQ2, “How could action learning and practice-based learning be combined to elaborate a more efficient learning model?”, were also provided where the research explained the principals of both action learning (Mueller et al., 2006) and practice-based learning (Neck et al., 2014), supported by practical examples. Indeed, similarities and complementarities were found between these two practices, specifically mentioning practice of reflection, practice of experimentation, and practice of empathy. Action learning has a greater focus on problem solving, but practice-based learning has a stronger emphasis on the practice of play as a catalyst for learning retention. Consequently, action learning combined with a practice-based approach has a powerful potential to reach the learning objectives of a successful entrepreneurial learning program, by focusing on learning retention through competency acquisition.

Finally, RQ3, “What are the profiles and roles of role-sets (pedagogical teams) in charge of the delivery of the entrepreneurship education programme?” can be considered at least partially addressed, regardless of the answers generated. Indeed, the focus of the study was more on the process and learning material than the pedagogic staff. Although permanent interactions with role-sets (pedagogical teams) provided a significant amount of qualitative data, another methodological framework would be necessary in order to exploit the data effectively. Consequently, answers provided for RQ3 concern a method that should be used by the role-set, independently from their profiles, using the proposed *intention and autonomy evaluation protocol* and the model of competencies to target in an entrepreneurial learning program, namely “*CAP –competency acquisition protocol*”.

## **5.7 Research validity and limitations**

In the qualitative research field, the task of estimating the quality of research cannot be reduced to the application of explicit, concrete, and exhaustive indicators. Even though some fundamental common guidelines may be required, there are important differences between research paradigms, which makes standard evaluation difficult (Hammersley, 2007). Quality can therefore never be a technical matter (Silverman, 2000). Still, it is important to discuss the validity of the findings and the knowledge claims of this research as well as their consistency; that is, how the findings may apply in situations other than those in which they were generated. Silverman (2000, p. 176) takes a stance on an issue with regards to validity, which is of relevance to this research. He asks how qualitative researchers are to convince themselves and their audience that their findings are genuinely based on critical investigation

of all their data, and not dependent only on a few well-chosen examples. When the researcher does not provide the criteria for including certain instances and not others, it becomes difficult for an audience to determine the representativeness of these instances and the findings generated from them. However, many of the conceptual constructs in the analytical field of this research, such as entrepreneurship intention, method of learning, and competency acquisition, overlap with concepts employed actively by participants in the empirical field. It was therefore a methodological challenge when interviewing, observing, and participating to keep a constant awareness of the differences that could be found beneath surface similarities (Krause-Jensen, 2010). This also means that the understanding derived from the analysis may be different to the understandings resting in the empirical field. In fact, they may even conflict with how people themselves regard their own world and their activities in it (Hammersley, 2006; Hastrup, 1995). It has therefore been imperative for this author to leave the research group for periods of time and involve others in the process of analysis. Still, it was somewhat alarming that, when granted access to studying educational programmes as an outside researcher, this author ended up criticizing the observed practices. Therefore, it has been imperative to discuss findings with both students and educators in order to not misinterpret reactions and the pedagogical purposes, as well as to challenge the findings. Staying focused on the subject of research and not interfering in other aspects of the programme that might have affected the research directly or indirectly was of utmost importance. However, the findings of this research will always go beyond the participants' perspectives.

There are clearly limitations to this study and how it was conducted. One concerns the action research method in terms of design and planning. It is valuable to consider how to establish an "empirical relationship" between the findings generated in specific enterprise education settings and other sites. Hence, it is worth thinking about how the findings of an action-research in-depth study may serve as the basis for "grand comparison" and understanding (Van Maanen, 2011(1988), p. 7) and speak for empirical conditions elsewhere (Small 2009). It is of course important that research in education contributes to change and improves education practices for the benefit of students and teachers, even though there are some concerns with regards to the method employed. Being an action researcher created a challenge to gain distance from the empirical setting, and an obligation, as a member of the team, to support the image of the setting. In addition, another concern is that this author's potential closeness is limited to the interpretations of the growing entrepreneur and balanced by the influences and interpretations of other actors.

Hence, it results in knowledge, which is different from the knowledge practitioners need to conduct class on a day-to-day basis. Of course, this does not imply that this knowledge is irrelevant, and it is certainly desired that the findings of this research will be tested and will initiate further research and discussions, which in the long track will impact research in the entrepreneurship field in general and entrepreneurial education in particular, as well as provide meaningful practice for the benefit of enterprising students and teachers.

## **5.8 Conclusion**

This thesis investigates the entrepreneurial learning process in the higher education context in Algeria, building from a case study and action research methodological approach, where the result of the entrepreneurial learning process is the creation of a new venture, and the creation is dependent upon the acquisition of entrepreneurial competencies. In the interest of investigating interaction and factors impacting learning retention, a systems perspective was adopted in order to recognise the impact of contributions from different levels of analysis, and from individual perceptions of the learning environment.

Entrepreneurial students need to develop competencies to think, act, and reflect entrepreneurially, which will support establishing legitimacy and reducing uncertainty and ambiguity. This can potentially decrease failure associated with the liability of newness, of underdeveloped social ties between new ventures and their external stakeholders, or lack of self-efficacy. These competencies can be developed through social interaction, through a mix of method and process of learning with a key set of actors, the role-set.

Competencies are developed through learning, including cycles of interaction where entrepreneurial students not only observe, imitate, and model mentors and role models with expert knowledge, but also engage in a set of practices, such as the practice of experience, in testing market hypotheses, understanding failure and negotiating actions, and engaging in the practices of creation in producing product prototypes. Also included are cycles of empathy in exchanging with other students and role-sets, of gaming in understanding human interaction and of creative reflection in evaluating actions, not to mention collecting feedback about behaviours as well as providing deliverables.

Learning through practices facilitates learning retention for entrepreneurial students. Entrepreneurial competency acquisition is developed through interaction with the role-set, as the student emulates or gains recognition from the role-set in the role of entrepreneur. This

can then be duplicated as a stand towards other actors, such as customers, suppliers, or financiers. Practice-based learning allows entrepreneurial students to practice future actions and develop a better understanding of expectations based on behaviour, thus increasing self-efficacy. Practice-based learning develops the behaviour of reducing uncertainty/ambiguity as the entrepreneurial students, in counsel with others, gathers, tests, analyses and determines information to shape or inform decisions, either through establishing predetermined outcomes where none existed (reduction of uncertainty), or improving information about the likelihood of predetermined outcomes (reduction of ambiguity).

Practice-based learning can be facilitated through the creation of a learning space, particularly when involving a role-set. The framework of a learning space is facilitated by a multitude of environmental factors. Factors of the environment impacting the learning space have both structural and social components. Structural environmental factors, such as office space or initial financing, may be provided in order to facilitate initial action and interaction, or identify, develop, and or purchase additional resources. Structural environmental factors may be used to facilitate guidelines or regulations regarding expected deliverables, where entrepreneurial students need to understand the process of building and establishing a venture.

The logic of this thesis constructs strongly upon social learning theory, understanding that the interaction between the students and their environment contributes to the development of entrepreneurial behaviour. However, this thesis has mainly focused on the students' perception and closed learning environmental factors, such as learning material and teaching staff (role-set).

This action research aims to answer the above questions, through analyses of how students function in learning contexts, where factors such as intention, targeted skills to be learned that are necessary for venture creation, and the degree of mastery and usefulness of the competencies are articulated in order to become an entrepreneur. The empirical findings were derived through a mix of methods, which gives legitimacy to this entrepreneurship education research, knowing that entrepreneurship demands practical as well as theoretical instruction. Due to the dynamism of the entrepreneurial context, entrepreneurship is seen as a collective phenomenon, as creative organising of thoughts, actions, and people in projects, which gathers individuals to pursue entrepreneurship as a way of life. That way of life integrates certain world views as well as everyday embodied interactions and allows for continued

reflection on practice and human experiences, consequently the study of this field needs multi-methodological approaches.

Introducing the practice of reflection in entrepreneurship teaching helps students to understand what they are learning, why they are learning it, and what is its usefulness. Reflection tunes learning to each student and makes learners more emphatic, which means they learn to how to learn. Reflection also helps academic teams dig deeper into their learners and understand the dynamics of learning and interaction, such as communication, collaboration and problem solving, which can provide unavoidable learning opportunities especially in entrepreneurship education.

Altogether, these findings and the literature background contribute to entrepreneurship and entrepreneurial education research by introducing a discussion about learning. On one side is the learning that is necessary to target in an entrepreneurship-learning programme, which impacts the development of entrepreneurship culture and stimulates entrepreneurial intention. On the other side is learning that aims to teach growing entrepreneurs to think, act, and reflect entrepreneurially, through the competency acquisition method. This thesis provided, humbly, two models, that were already tested in the frame of professional corporate learning management programmes, and incubation programmes with almost 150 managers and entrepreneurs, and the results were astonishing, in terms of degree of competency acquisition. The proposed **“intention and autonomy evaluation protocol”** allows measuring the degree of autonomy and intention, with a large range of applications, as a possible contribution to practice. The other proposed model is **CAP “competency acquisition protocol”**, which allows for the measurement of the learning retention degree very early on in a curriculum, in a continuous manner, emphasising the degree of mastery of competencies and not the degree of memorisation of theoretical concepts, as the oxygen of entrepreneurial education is practice.

## **Chapter 6. Author's personal reflections**

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Research on learning is, in and of itself, a learning activity. This thesis is the result of revelations, achievements and opportunities captured along the way. The author uses this final section to address reflections on the intellectual journey undertaken throughout the research.

The author's first intellectual stance on some of the learning which occurred at the start of the research, is that he was amazed by the power of action-learning-circle practice with the classmates and the valuable coach, Slava Kubatova, and how this learning process, with the same number of participants' attention, put emphasis on knowledge, social, as well as cognitive learning. But as time went on, the author began to think that maybe he felt this way only because he was directly involved. It made him think back on the purposes of education and wonder if he hadn't been a bit brainwashed by his own experiences. However, being a professional of adult learning, he started experiencing the action learning process back in the office; he noticed that participants were astonished by the power of the process, in terms of problem solving methodology and understanding social interaction and, moreover, cognitive reflection.

What is also interesting about his interactions with students is that they reflected more on their emotional rather than on their intellectual reactions, beliefs and premises. For example, one student noted: "At the beginning of the year I thought that I was going to be left behind, but now I think that I am someone different because I am discovering myself." Another echoed similar sentiments: "I feel a lot more positive now, knowing that I am as capable as everyone else that is on the course, and also with the knowledge that I earned the right to be here!"

While the research was in progress, the author started to feel apprehensive about the huge number of subjects that the entrepreneurship field research covers, and his ideas began by being badly organised, where the majority of the time he did not even know what to write about and ended up being indecisive. However, thanks to the concept of preunderstanding captured in literature review from the hermeneutics in action approach, he tried to develop the research intuitively in the sense that it was based on his own understanding (McAuley, 1985) of what it was to be a student within the context of an entrepreneurial learning program. He prepared a preliminary list based on his preunderstanding of what the issues related to the lack of entrepreneurial learning effectiveness might be. The preunderstanding was based on his



own experience within his profession and in other various roles entrepreneur, business consultant, contributor in NGOs and university lecturer and his understanding of what at that stage he had taken to be the relevant literature. This preunderstanding has objective and subjective aspects. His list of issues represented his hunches (McAuley et al, 2004), and was in large part thanks to his thesis supervisors, John McAuley and Slava Kubatova, who were continuously checking on his progression and kindly and generously giving him advice.

Finally, the most important thing that ironically allowed the author to progress very quickly and effectively was effectuation (Sarasvathy, 2006), something that he was preaching throughout his research, namely, deliver, deliver and deliver. From his point of view, he was barraging his thesis supervisors with incomplete pieces of work; however, he needed to have something concrete to work on, that he could see tangibly on a piece of paper, and not just notes or thoughts. Consequently, the most important reflections that he can synthesise in this action research is that, even in a project such as writing a thesis we need entrepreneurial competencies, including communication, collaboration, problem solving, reflection, and generating deliverables.

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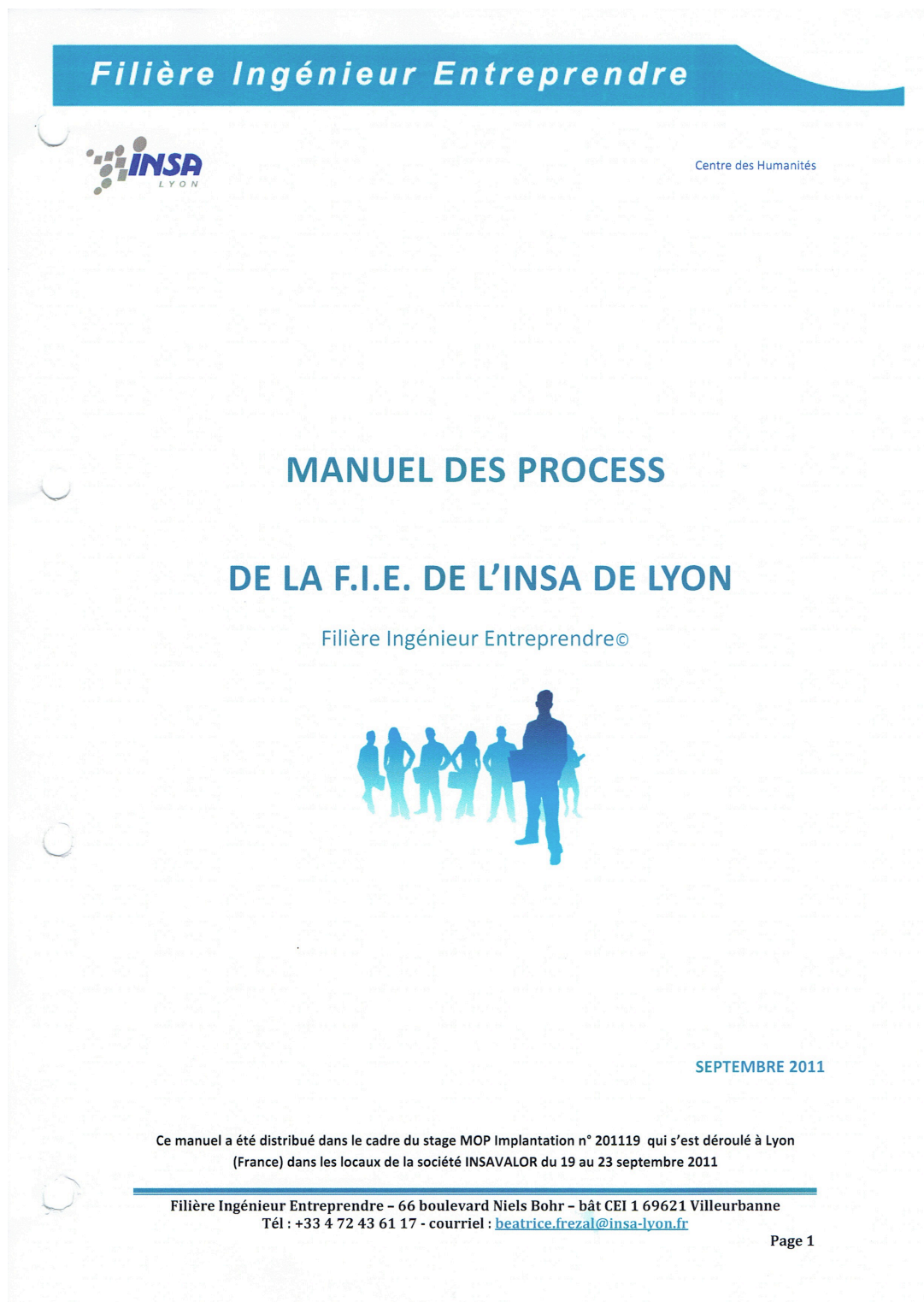


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## Appendices

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### Appendix 1: FIE Case study pedagogic Manual:



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## I. LES VALEURS DE LA FILIERE INGENIEUR-ENTREPRENDRE

Entreprendre, c'est se mettre en mouvement vers un objectif déterminé<sup>1</sup>, c'est oser aller un peu plus loin que les autres. L'acte d'entreprendre ne se réduit donc pas à la seule création d'entreprise. Un Ingénieur responsable de service ou d'un projet peut diriger ses équipes en ayant deux types d'attitudes, l'une plutôt gestionnaire, l'autre entrepreneuriale avec une vision à long terme.

La Filière Ingénieur-Entreprendre de l'INSA de Lyon repose sur des hommes et femmes entreprenants, et des projets innovants

### 1. DES HOMMES ET DES FEMMES ENTREPRENANTS

Bien que l'acte d'entreprendre repose sur une décision individuelle, l'entrepreneur doit travailler en et avec, une équipe qu'il guidera. C'est pourquoi la Filière Ingénieur-Entreprendre favorise le développement de valeurs piliers comme :

- Le travail collectif
- L'entraide, altruisme intra et inter projet

Ces valeurs se manifestent sur le plan des attitudes et des comportements :

#### AU NIVEAU DE L'INDIVIDU

##### Créativité

*Exprimer des idées, proposer des solutions, des pistes de recherche, être toujours en alerte et développer sa sérendipité etc.*

##### Autonomie

*Faire des choix, prendre des initiatives et des décisions dans le cadre de ses responsabilités.*

##### Confiance en soi

*Se percevoir positivement, miser sur ses aptitudes, ses habiletés et compétences.*

##### Ténacité

*Faire preuve de constance et de persévérance voire d'opiniâtreté dans ce qu'on entreprend. Inscrire son action dans la durée, la mener à terme.*

##### Enthousiasme

*La capacité à convaincre et à soulever des montagnes*

##### Humilité

*tout en ayant une perception la plus exacte possible de ses capacités*

<sup>1</sup> Dictionnaire Hachette

<sup>2</sup> la sérendipité est une découverte, provoquée par une attitude d'esprit, qui consiste à rebondir sur les conséquences d'une aventure, d'une rencontre, d'une recherche ou d'une expérience; ...c'est une démarche heuristique (Wikipedia sérendipité 17/01/09 [http://fr.wikipedia.org/wiki/S%C3%A9rendipit%C3%A9#D.C3.A9finition\\_de\\_la\\_s.C3.A9rendipit.C3.A9](http://fr.wikipedia.org/wiki/S%C3%A9rendipit%C3%A9#D.C3.A9finition_de_la_s.C3.A9rendipit.C3.A9))



## AU NIVEAU DES RELATIONS AVEC LES AUTRES

### Solidarité

*Accepter de se sentir responsable des choix et décisions du groupe ou de l'organisation, valorisation du travail des autres, prise en compte de l'autre, avec ses qualités et ses défauts*

### Sens des Responsabilités

*Assumer et réaliser ce qui a été convenu par l'équipe, le groupe, l'organisation ou soi-même.*

### Esprit d'équipe

*Travailler avec d'autres en tenant compte des responsabilités de chacun, honnêteté, transparence et rigueur intellectuelle pour générer la confiance mutuelle*

### Leadership

*Entraîner et motiver les autres dans la réalisation des idées, du projet, avoir une influence sur les autres, en raison de ses qualités personnelles, de ses connaissances, de sa compétence.*

### Convivialité

*Travailler sérieusement tout en partageant des moments agréables lorsque les circonstances s'y prêtent.*

## 2. DES PROJETS INNOVANTS ET VALORISANTS

Les projets de création d'entreprise ou d'activité retenus au sein de la Filière Ingénieur-Entreprendre sur proposition des élèves ingénieurs/scientifiques ou des organismes extérieurs répondent aux critères suivants :

### *Des projets innovants*

D'après les quatre types d'innovation exposés par Le Manuel d'Oslo de l'OCDE :

- les innovations **de produit**
- les innovations **de procédé**
- les innovations de **commercialisation**
- les innovations **d'organisation**

### *Des projets valorisant les connaissances des participants*

Les projets doivent permettre aux participants de la FIE qui sont des élèves ingénieurs ou scientifiques de mobiliser leurs acquis en matière technologique au service de la conception et du développement économique du projet de projet.



## II. VOCATION DE LA FILIERE INGENIEUR-ENTREPRENDRE

La FIE est clairement un programme pédagogique situé en fin de cursus initial des ingénieurs qui s'appuie sur des projets « vivants ».

« Formation des Ingénieurs à Entreprendre sur le support d'un projet qui leur fait appréhender et assumer les risques propres à l'entreprise »<sup>3</sup>

La Filière Ingénieur-Entreprendre est un dispositif permettant aux ingénieurs et scientifiques d'acquérir une double formation en fin de scolarité, dans une école ayant passé une convention avec la Filière Ingénieur-Entreprendre ou dès la sortie pour les ingénieurs fraîchement diplômés avec ou sans expérience professionnelle. Elle s'adresse aux :

- Elèves ingénieurs en dernière année d'études, porteurs de leur propre projet.
- Elèves ingénieurs en dernière année d'études qui souhaitent porter et développer un projet pour le compte d'une entreprise ou plus simplement, compléter leur formation scientifique et technique par une formation managériale intensive.
- Ingénieurs scientifiques et docteurs fraîchement diplômés, sans expérience ou possédant une expérience minimale, porteur de leur propre projet.
- Ingénieurs scientifiques et docteurs, fraîchement diplômés sans expérience ou possédant une expérience minimale qui souhaitent porter ou développer un projet pour le compte d'une entreprise, ou plus simplement compléter leur formation scientifique et technique par une formation managériale intensive.

### Ses buts sont :

- Former les participants aux méthodes permettant de passer d'une idée à une activité rentable en prenant en compte les aspects stratégiques, marketing, financiers et humains pour une application intra entreprise ou pour leur propre création d'entreprise.
- Transmettre et développer l'esprit d'entreprendre.
- Accompagner, des ingénieurs et scientifiques diplômés ou futurs diplômés dans leur processus de création d'entreprise ou d'activité.

### Certificat académique

A l'issue de la formation au sein de la Filière Ingénieur-Entreprendre, un Certificat de Spécialisation de l'INSA de Lyon "**Manager, Entreprendre & Technologie**" est délivré à chaque participant qui aura satisfait aux exigences du contrôle continu. Ce certificat est délivré par INSA de Lyon, via sa filiale de formation continue INSACAST qui atteste que le récipiendaire a suivi la formation dispensée par la Filière Ingénieur-Entreprendre et qu'il a subi avec succès les épreuves du contrôle continu et du jury final.

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✓ <sup>3</sup> Conseil de Filière du 18 juin 2010



## III. STRATEGIE PEDAGOGIQUE

La pédagogie développée au sein de la FIE permet au participant d'acquérir quatre blocs de **compétences nécessaires à l'entrepreneur**. Il doit être capable :

- D'imaginer des concepts de produits valorisables à partir des technologies innovantes.
- D'oser transformer son concept d'offre en une activité rentable.
- De manager son projet pour atteindre ses objectifs.
- De dresser son bilan personnel afin d'orienter au mieux son style d'animation d'équipe et de recruter les bonnes compétences.

Au sein de la Filière Ingénieur-Entreprendre, le participant doit acquérir une culture du travail **en et avec** une équipe. C'est pourquoi, **le programme est structuré par le projet de création d'entreprise ou d'activité. Chaque projet est mené par une équipe de 2 à 4 participants**. Afin d'enrichir la formation, les équipes peuvent recruter des stagiaires en respectant le processus de recrutement d'un cadre. L'ensemble des apports doit trouver une concrétisation immédiate dans le projet.

Les **grands concepts de l'entreprise** font l'objet d'une **découverte préalable** par les participants avant les regroupements lors des **séances de synthèse**. Le projet catalyse les apports conceptuels.

*Les apports du programme reposent sur 4 formes de pédagogie.*

### 1. PEDAGOGIE DE L'ECHANGE ENTRE PARTICIPANTS

Elle s'appuie sur les séances plénières animées par un intervenant spécialiste du thème :

<b>Synthèse</b>	Les intervenants articulent leurs apports autour de 3 à 5 fondamentaux issus de leur expertise qu'ils font partager aux étudiants. La compréhension des concepts est préparée par le travail sur les mémos.
<b>Ateliers</b>	Les ateliers sont centrés sur la pratique de savoir-faire opérationnels et d'apports de savoir-être personnels et professionnels On distingue les ateliers méthodes-outils et les ateliers comportementaux.

*Les ateliers sont conçus de 2 outils :*

- ateliers outils pour une **mise en application directe d'outils** dans le plan d'affaires des projets entrepreneuriaux :
- ateliers comportementaux centrés sur la négociation avec les acteurs internes et externes et le travail sur l'être destiné à faciliter le travail collectif et le travail de management commençant par une meilleure connaissance de soi et de ses possibilités.

### 2. PEDAGOGIE DE L'ACCOMPAGNEMENT

Pour être efficace, ce dispositif est supporté par 2 types d'accompagnements :



- **individualisé** sur la globalité du projet avec un Administrateur conseil<sup>4</sup> pour chaque équipe,
- **thématique** sous forme de Revues d'Avancement du Projet (RAP), et d'un crédit d'heures de conseil par projet, assuré par les intervenants consultants experts du programme

### 3. PEDAGOGIE DE L'AUTONOMIE

Elle se compose de travail autonome. Estimé à 500-800 heures par participant en individuel ou en équipe. Le travail autonome permet aux participants de :

- préparer les séances de synthèses.
- enquêter ou prendre des contacts auprès d'entreprises ou de futurs clients.
- réunir les éléments de construction de leur plan d'affaires.
- mettre en forme le plan d'affaires.

Une salle de travail informatisée "La Ruche", ouverte 7 jours sur 7, 24/24h, équipée d'ordinateurs, wifi, téléphone fixe, salle de détente, accueille les équipes projet, qui disposent ainsi d'un bureau performant et permanent.

### 4. PEDAGOGIE COLLECTIVE

En tant que groupe constitué, chaque équipe devra se fixer des règles de fonctionnement et respecter celles de la Filière Ingénieur-Entreprendre. L'ensemble des règles et usages pédagogiques amènera le participant à mesurer ses progrès et à accroître son autonomie.

Des conférences et les séminaires apporteront des éclairages thématiques professionnels, sociaux et culturels. Dans ce domaine la présence aux conférences est obligatoire.

Les participants auront tout au long du programme l'opportunité de s'appuyer sur leur administrateur conseil et de pouvoir faire appel à des conseils auprès de consultants experts. La réussite du participant (construction du plan d'affaires, acquisitions comportementales et conceptuelles) nécessite un travail intense.

Le programme se déroule en trois périodes :

- De Novembre à Février, l'ante-programme est consacré à une réflexion personnelle et collective sur le concept d'entrepreneuriat et de plan d'affaires.
- La première quinzaine de Février est consacrée à l'Inno-Lab. Ce laboratoire d'idée de la Filière aura pour objectif de faire mûrir et consolider les idées apportées par les étudiants ou les parties prenantes extérieures pour démarrer le programme de pré-incubation avec des projets riches, supports de la pédagogie.
- La fin de l'Inno-Lab lance le programme de la Filière Ingénieur-Entreprendre. Il est consacré :

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<sup>4</sup> Administrateur conseil : Intervenant spécifique à chaque groupe qui pourrait faire partie du conseil d'administration de l'entreprise si elle existait. Son rôle est d'amener un regard externe critique sur le fonctionnement de l'entreprise virtuelle (le projet).



- à la conception du plan d'affaires,
- à l'acquisition des connaissances
- à la maîtrise des concepts fondamentaux du management d'entreprise.

D'autre part, durant le programme, chaque participant devra assumer la responsabilité d'une mission d'intérêt général pour la Filière Ingénieur-Entreprendre.

## IV. PROGRAMME

### 1. ANTE-PROGRAMME

Cet ante-programme se déroule de novembre à février, et a pour objectifs :

- De favoriser les contacts entre les participants.
- De faire réfléchir les participants à des thématiques liées à l'entrepreneuriat.
- D'échanger autour des projets de création d'entreprise ou d'activités présentés par les participants afin de les affiner.

L'ante-programme se compose de trois réunions de travail entre les mois de novembre et février dont certaines peuvent se dérouler en visioconférence avec les participants effectuant un stage ou un semestre d'étude à l'étranger et de la rédaction de trois mémos sur des thématiques liées à l'entrepreneuriat.

**Note :** Les mémos sont des textes rédigés en bon français qui permettent au participant ou à une équipe de participants de synthétiser clairement sa (leur) pensée. L'écriture nécessite un effort de clarification et de compréhension des concepts beaucoup plus important qu'une restitution orale. Ils seront remis sous **forme papier** reliés en deux exemplaires **et** sous forme électronique envoyée au secrétariat de la filière : [marie.rousseau@insa-lyon.fr](mailto:marie.rousseau@insa-lyon.fr). Leur volume est de l'ordre de 5 à 10 pages dans un corps de texte inférieur à 12 points et des marges normales ( $\leq 2$  cm).

#### ➤ Mémo « Entreprendre »

Réflexion sur l'acte d'entreprendre et l'entrepreneur. Le champ est vaste et se prête bien à de multiples visions différentes. Ne pas oublier que de plus en plus l'entrepreneuriat se situe à l'intérieur des entreprises, ce qui a été appelé au début des années quatre-vingt « l'intrapreneuriat ».

**Collectif** par équipe de deux à quatre participants.

#### ➤ Mémo « Opportunité d'affaires et Plan d'affaires »

Qu'appelle-t-on Opportunité d'Affaires ? Qu'est-ce qu'un Plan d'affaires, à quoi cela sert-il ? Quel est le lien entre Opportunité d'affaires et Plan d'affaires ? Comment conçoit-on un Plan d'affaires ? Comment cela se présente à des clients, des banquiers, des financiers ? Pourquoi concevoir un Plan d'affaires ? Quelles sont les figures imposées d'un Plan d'affaires ? Peut-on se passer d'un Plan d'affaire ? Y a-t-il d'autres modèles que le Plan d'affaire ?



**Collectif** par équipe de deux à quatre participants différents de ceux du précédent mémo.

➤ **Mémo « Vision, stratégie, politique »**

Les sciences humaines et sociales ne sont pas des sciences exactes. Ces concepts sont polysémiques et il n'y a pas toujours consensus entre les acteurs sur leur sens. Certains les combinent même en une définition commune servant leurs objectifs.

Il vous est demandé au sein de ce mémo de balayer les définitions de ces concepts puis de vous approprier le ou les sens qui vous permettront d'éclairer votre propre réflexion en tant que participant à l'élaboration d'un projet d'innovation au sein de la FIE.

Que recouvrent ces concepts ? Dans quels champs sont-ils appliqués ? Qui les construit et les propose ? Comment sont-ils applicables au sein du projet FIE ? Quelle est la liaison avec la vision à long terme du projet ?

Mémo **collectif** par binôme.

## 2. L'INNO-LAB : PREMIERE QUINZAINE DE FEVRIER

### PRESENTATION

Du Lundi 7 Février au Mercredi 23 Février se déroulera la première session de l'Inno-Lab. Il sera découpé en plusieurs phases dont les objectifs seront complémentaires. Les premiers jours auront pour objectif de libérer la créativité des participants. Ces derniers découvriront les outils, méthodes et surtout l'état d'esprit nécessaires à l'animation de séances de créativité. Dans un second temps, les participants seront sensibilisés à la thématique « Nourrir l'idée ». Problématiser son idée, organiser un plan de collecte d'informations, rechercher ces infos, et identifier les parties prenantes seront les principaux sujets abordés pendant ces quelques jours. Enfin la dernière semaine permettra aux participants de cerner la complexité du lancement d'une activité et l'importance des alliances stratégiques dans l'entreprise.

Les finalités de l'Inno-Lab sont les suivantes :

- Rendre les participants de la FIE conscients du chemin à parcourir entre un concept et une innovation, qu'ils soient « promoteurs d'idée » ou « équipiers »
- Générer une émulation entre promoteurs d'idées et une appétence auprès des équipiers pour les idées en jeu.
- Donner aux participants du temps pour trouver leur positionnement au sein du programme Filière Ingénieur-Entreprendre et au sein d'une équipe projet.





## PROGRAMME


### Calendrier

	Lundi 7	Mardi 8	Mercredi 9	Jeudi 10	Vendredi 11
AM	Marathon de l'Innovation	Course aux Projets	Recherche d'Informations		Revue de Pré-Projets
PM			Livable Fiche « Idée-Projet »	Livable Fiche « Pré-Projet »	
	Lundi 14	Mardi 15	Mercredi 16	Jeudi 17	Vendredi 18
AM	Jeu d'entreprise Comète	Jeu d'entreprise Comète	Jeu d'entreprise Comète		Revue de Projets
PM			Présentation de la formation	Livable Fiche « Projet »	
	Lundi 21	Mardi 22	Mercredi 23	Programme « Inno-Lab » 2011	
AM		Constitution des équipes	Installation de la Ruche		
PM	Comité de validation		Speed Dating Administrateurs Conseil		

Les horaires de la Filière Ingénieur-Entreprendre sont : 8h30 à 12h00 et 14h à 17h.

 Livrables détaillés dans le paragraphe suivant.

 Présentation des projets à leurs différents stades de maturation.

 Temps libre à consacrer à la réflexion sur les idées-projets.

## LIVRABLES

Chacun des trois livrables devra être envoyé au format PDF, à l'adresse suivante : [marie.rousseau@insa-lyon.fr](mailto:marie.rousseau@insa-lyon.fr) au plus tard à 17h00 le jour de la livraison. Les livrables envoyés après l'heure ne seront pas pris en compte dans les travaux d'analyse de l'équipe pédagogique. Les templates des fiches vous seront envoyés par e-mail dans la semaine qui précède l'Inno-Lab.

### FICHE « IDEE-PROJET »

La fiche « Idée-Projet » est la première étape de formalisation de votre idée. Vous serez invité à préciser votre concept, son caractère innovant, l'opportunité d'affaire qu'il crée et la motivation qui vous pousse à défendre cette « Idée-Projet ». Il vous sera possible de soumettre plusieurs versions de votre fiche « Idée-Projet ». Seule la dernière version envoyée sera prise en considération par l'équipe pédagogique.



## FICHE « PRE-PROJET »

L'objectif de la fiche de « Pré-Projet » est de cadrer l'idée dans son environnement et d'identifier ses parties prenantes. En formalisant ces informations dans la fiche de « Pré-Projet », l'apporteur sera alors capable d'identifier les failles et les manques d'informations de son projet. Ce premier travail sera accompagné de la revue de « Pré-Projet » et permettra de faire un point à la fin de la première semaine qui aiguillera l'apporteur dans ses tâches de la seconde semaine.

## FICHE « PROJET »

La fiche « Projet » se fonde sur la même structure que la fiche de « Pré-Projet ». Après une semaine de recherche d'informations supplémentaires, l'apporteur d'idée aura corrigé sa fiche pour enrichir la précédente. Proposant un dossier complet et pertinent, il sera alors capable de présenter son projet au Comité de Validation. Cette fiche de « Projet » sert d'aide à la décision pour le Comité de Validation lors de la présentation.

## SELECTION DES PROJETS

Vous serez invités à présenter votre projet devant un jury d'experts reconnus. Vous serez évalués sur cinq critères déterminants : la capacité à faire du business avec votre idée, le caractère innovant de votre offre, votre crédibilité, la capacité qu'aura le projet à être un support pédagogique pour la Filière Ingénieur Entreprendre et la probabilité qu'aura votre affaire de se monter. A l'issue de ce comité de validation, huit projets maximum seront sélectionnés pour continuer dans le cadre de la formation à la Filière Ingénieur Entreprendre.

## CONSTITUTION DES EQUIPES

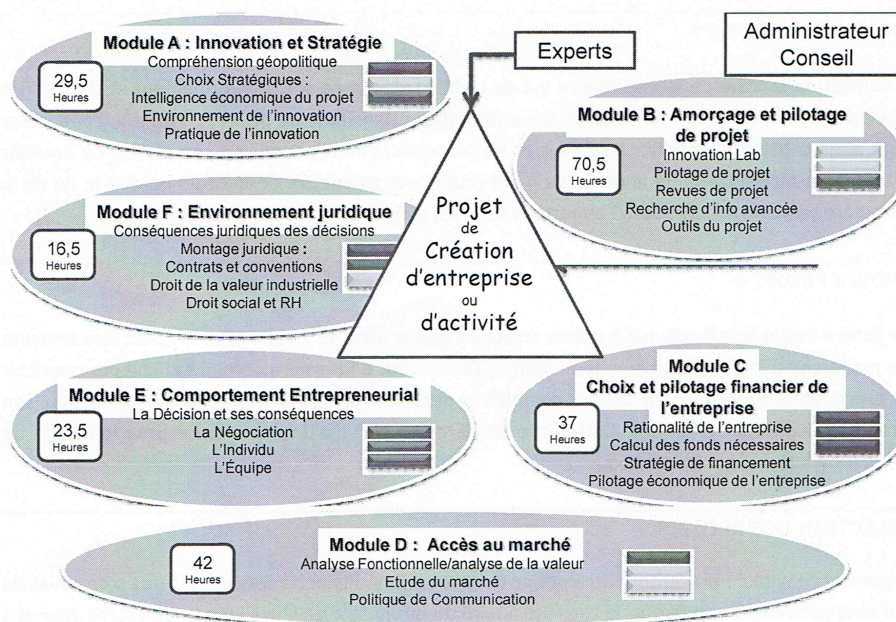
Vous serez invité à constituer vos équipes autour des projets qui auront été sélectionnés la veille. Aucun membre de l'équipe pédagogique ne sera présent pour encadrer ce processus. A l'issue des négociations, la liste des groupes sera proposée à l'équipe pédagogique et respectera certains critères de mixité. Ne seront pas autorisés :

- des groupes composés de jeunes filles uniquement,
- des groupes composés d'étudiants issus d'un unique département,
- des groupes avec plus d'un étudiant étranger.

### 3. LE PROGRAMME INTENSIF : 24 FEVRIER AU 13 JUILLET 2011

Le déroulement du programme est rythmé par le processus du projet, afin que les apports de connaissance coïncident au mieux avec l'état d'avancement des projets. Ces apports sont classés par thématiques fortes.





## Apports de concepts – Apports de méthodes – Apports de savoir être

### MODULE A : INNOVATION & STRATEGIE

Ce module a pour objectif pédagogique d'amener chaque équipe à exprimer les lignes directrices à long terme de son projet en tenant compte de la vision du créateur, de la nature même du projet, tout en intégrant les contraintes externes liées à l'environnement et la concurrence. L'accent est mis sur l'expression des valeurs d'une culture d'entreprise ainsi que la traduction financière des objectifs fixés : notion de modèle économique.

Cet ensemble d'activité conduit à des décisions qui orienteront profondément le projet. Il est donc important que chaque participant prenne la pleine mesure de ce qu'est une décision comme résultat d'un processus et impliquant un certain nombre de conséquences

### MODULE B : AMORÇAGE ET PILOTAGE DE PROJET

Acquérir des compétences en management de projet. Utiliser les outils du management de projet. Savoir gérer un groupe et contrôler le déroulement d'un projet.

Savoir construire son projet personnel.

### MODULE C : CHOIX ET PILOTAGE FINANCIER DE L'ENTREPRISE

Ce module sert à acquérir des compétences et connaissances liées à l'aspect financier et économique du plan d'affaires à la stratégie financière et à la négociation avec d'éventuels investisseurs.



Il permet d'aborder la préparation des négociations concernant la constitution du capital et du financement à long terme de l'entreprise, l'établissement des tableaux financiers reflétant le fonctionnement économique de l'entreprise future et la mise au point des tableaux de bords indispensables au suivi de la future activité de l'entreprise.

## MODULE D : ACCES AU MARCHÉ

Module destiné à acquérir des techniques et outils de la mercatique en vue de valider l'idée de l'offre et construire le projet de création d'entreprise.

Acquisition d'outils comme la méthodologie de l'étude de marché, l'analyse fonctionnelle, la segmentation ou la communication opérationnelle.

Ce module est essentiellement centré sur la création d'entreprise ou d'activités innovantes. Il permet aux participants de découvrir et de mettre en application les exigences de l'innovation en matière de recherche orientée utilisateur, management et gestion de la valeur.

## MODULE E : COMPORTEMENT ENTREPRENEURIAL

Ce module a pour objectif pédagogique d'acquérir des compétences et des pratiques liées au monde des affaires pour ce qui concerne la partie comportementale du dirigeant. Chaque participant devra développer son potentiel en vue d'acquérir techniques et aisance dans la relation d'affaires (fournisseurs, clients, partenaires sociaux ...).

Le développement professionnel humain du manager entrepreneur nécessite pour le participant une réflexion approfondie sur l'intégration de son projet professionnel au sein de son projet de vie, un travail intense en vue de développer ses propres capacités et son style personnel de management, au-delà de la simple acquisition de connaissances des techniques utilisables dans ce domaine et une approche par la pratique des situations de négociation tant commerciales que financières ou managériales.

En s'appuyant sur les valeurs de la Filière Ingénieur-Entreprendre, le module propose un ensemble de pratiques pédagogiques diversifiées : jeux de rôle, pratique sportive, réflexion, bilan...

## MODULE F : ENVIRONNEMENT JURIDIQUE

Le module « Environnement juridique » constitue une première sensibilisation à l'aspect juridique que revêt toute décision ou activité d'une entreprise et plus largement humaine. Les grands secteurs juridiques sont abordés :

- Acquérir les connaissances pour choisir la bonne structure juridique pour le projet
- Prendre conscience des possibilités de protection dans le cadre d'une création
- Connaître ses droits et devoirs en matière de contrats
- S'initier à la protection de la propriété intellectuelle
- S'initier au droit du travail



## 4. LE JURY-COMITE PROFESSIONNEL

Mi-juillet chaque équipe présente le Plan d'Affaires du projet devant un jury de financiers et spécialistes de la création d'entreprises et du développement d'activités innovantes.

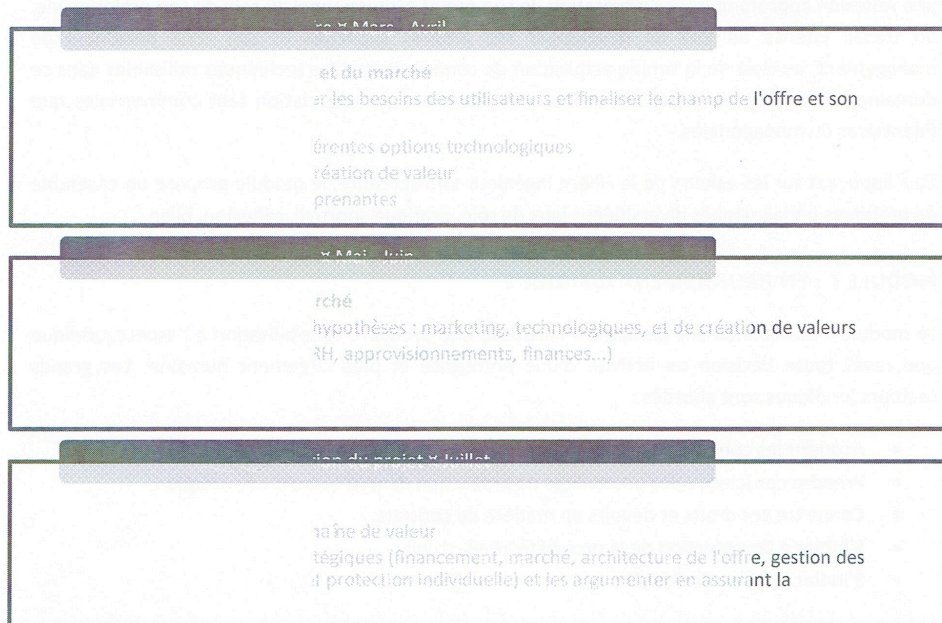
Ce jury final complète le dispositif d'évaluation continue constitué par les mémos et les dossiers techniques appliqués.

## 5. UN PROCESSUS RYTHME PAR L'EVOLUTION DU PROJET

Chaque équipe se consacre à l'avancement de son projet spécifique et va adopter son propre rythme qui diffère selon la nature du projet ou le secteur d'activité. Ainsi, par expérience, les projets de services nécessitent une investigation marketing plus poussée en début de programme, alors qu'au même moment, les projets industriels ont plus tendance à se focaliser sur une approche centrée sur l'offre. Pour s'adapter au rythme de chaque projet et proposer un accompagnement adéquat, deux axes ont été avancés : l'un asynchrone, les jalons, l'autre synchrone, les revues d'avancement de projet.

### JALONS

Le pilotage du projet avec les jalons permettra de mesurer son avancement. La validation des jalons est une étape qui s'effectuera avec l'administrateur conseil de l'équipe. Le programme de la Filière Ingénieur-Entreprendre comporte trois jalons :





## REVUE AVANCEMENT DU PROJET (RAP)

Les Revues d'Avancement de Projet sont un temps fort de la F.I.E car elles assurent un suivi régulier des projets, témoignent du travail accompli et permettent des échanges féconds avec la promotion et avec un expert professionnel.

La **présence** de chaque participant est **obligatoire** lors de chaque RAP

Une quatrième RAP permet de mettre en perspective l'ensemble du travail réalisé et de préparer le jury-comité d'experts de fin de programme.

Les RAP sont confidentielles, seuls sont autorisés à y assister l'ensemble de la promotion (présence obligatoire), l'intervenant qui encadre la RAP, les intervenants du programme ou du conseil de filière qui le souhaitent ainsi que les enseignants référents au sein des départements et écoles d'origine des étudiants. Dans le cas d'un projet d'activité, la présence du donneur d'ordre est souhaitée pour la présentation du projet concerné. Pour toute autre personne, l'accord des responsables de la Filière est requis. Toute information communiquée lors des revues de projet est couverte par la clause de confidentialité signée par chaque personne y compris chaque participant.

Chaque RAP est menée sous la conduite d'un intervenant, elle comprend quatre périodes :

- **1<sup>ère</sup> période** : 15 minutes,
  - présentation synthétique des finalités du projet
  - Présentation de l'ensemble du cheminement prévu et situation à l'instant de la RAP
  - Détail de la revue de projet de l'équipe.
  - Engagement pour la prochaine RAP

Ne pas oublier que certains intervenants qui assistent à la RAP ne sont pas complètement informés, il est donc bon de prévoir un court rappel sur les "épisodes précédents" en introduction.

- **2<sup>ème</sup> période** : 15 minutes, questions et critiques constructives en commençant par celles des participants.
- **3<sup>ème</sup> période** : 10 minutes, conclusion par l'animateur de la revue de projet et debriefing : l'équipe qui a présenté se retire pour "débriefer" la revue de projet avec son administrateur conseil s'il est présent (en faire une analyse et reprendre les modifications et les engagements lors de cette présentation). A l'issue de ce temps de réflexion, **l'équipe revient en séance plénière.**

## 6. LIVRABLES

### CONCOURS LITTÉRAIRE D'ANTICIPATION

Ce mémo est une œuvre d'imagination de pure fiction, à la façon de Jules Verne. Il s'agit de décrire le secteur d'activité de votre entreprise dans 50 ans. Cette référence temporelle volontairement hors du champ d'exploration classique est une invitation au "délire". Délire raisonné, car il se peut se déterminer des lignes de force suffisamment permanentes pour que l'on puisse considérer qu'elles seront toujours d'actualité dans 50 ans. Ce concours donnera lieu à une cérémonie de récompense sous la présidence d'un écrivain.



Œuvre **collective** de l'équipe projet.

## DOSSIERS TECHNIQUES APPLIQUES

Ces dossiers sont des travaux écrits à rendre par équipe projet qui traitent d'un thème que vous appliquerez à votre projet et sont au nombre de quatre :

- Dossier recrutement
- Bilan d'évolution et perspective professionnelle
- Dossier cartographie des acteurs
- Structure des systèmes d'information du projet

## DOSSIER GRIS

En management de projet, il s'appelle **dossier de traçabilité du projet**. C'est un dossier confidentiel que chaque équipe devra constituer au fur et à mesure de l'avancement du projet. Il a pour but :

- D'expliquer les cheminements des raisonnements qui conduisent aux décisions.
- De préciser les stratégies adoptées en vue de conduire les différentes activités de l'équipe : étude de marché, étude juridique, étude financière etc...
- De détailler certains points de calcul etc...
- De noter tous les comptes rendus internes au groupe et avec l'AC

Il sera constitué dans un classeur et une version sera disponible sur le disque partagé des équipes, consultables par les intervenants et les responsables de la FIE et les administrateurs conseils.

La fiche d'avancement en est le résumé très condensé.

## 7. CHEQUIER CONSEIL

Lors de l'étude des plans d'affaires, les équipes peuvent avoir besoin, outre les informations reçues lors des séances plénières ou obtenues auprès de leur administrateur conseil, d'informations plus pointues relevant du domaine des experts. Dans cette optique, chaque équipe est dotée d'un chéquier conseil virtuel de 3h de consultation.

Pour qu'un groupe bénéficie de ses heures de conseil, il doit obtenir l'aval de son Administrateur Conseil. Le chéquier se compose de 6 chèques d'1/2 d'heure chacun.

**L'expert ne peut pas être l'administrateur conseil de l'équipe**, mais l'administrateur conseil peut être expert pour une équipe dont il n'assure pas le suivi.

Ces chèques conseils sont à utiliser auprès des experts dans la liste de vos intervenants principaux de l'année. En revanche toute consultation effectuée auprès d'un expert autre que dans ce cadre sera à la charge du groupe.

## V. SYSTEME D'EVALUATION



Le travail des participants est évalué selon le mode suivant :

Intitulé	Pondération
<b>Plan d'affaire – 50% de l'évaluation globale</b>	
Problématique et politique d'entreprise	1/20
Etude de l'environnement et du marché	1/20
Conception de l'offre	1/20
Modèle économique	1/20
Stratégie	1/20
Finances et gestion	1/20
Droit	1/20
Politique Humaine	1/20
Professionalisme de la présentation orale	1/20
Qualité du support visuel	1/20
<b>Livrables – 50% de l'évaluation globale</b>	
Mémo « Entreprendre »	1/20
Mémo « Opportunité d'affaires – Plan d'affaires »	1/20
Mémo « Vision, Stratégie et Politique »	1/20
Concours Littéraire	1/20
Dossier technique appliqué « Recrutement »	1/20
Dossier technique appliqué « Bilan d'évolution et perspectives professionnelles »	1/20
Dossier technique appliqué « Cartographie des acteurs »	1/20
Dossier technique appliqué « Structure des systèmes d'informations du projet »	1/20
Comportement professionnel*	1/10

\*Une note de Comportement professionnel (ponctualité + attitude + participation à la vie de la Filière) sera attribuée après exploitation des fiches de présences. Cette note fait partie du système d'évaluation continue.

## VI. LISTE DES PARTICIPANTS



## VII. DATES CLES DE LA FILIERE INGENIEUR-ENTREPRENDRE

Intitulé	Date
<b>Ante-programme – du mois de Novembre 2010 au mois de Février 2011</b>	
Mémo « Entreprendre »	2 Décembre 2010
Mémo « Opportunité d'affaires / Plan d'affaires »	17 Décembre 2010
Mémo « Vision, stratégie et politique »	28 Janvier 2011
<b>Inno-Lab – du 7 Février au 23 Février 2011</b>	
Fiche Idée-Projet	Avant le 9 Février 17h
Fiche Pré-Projet	Avant le 10 Février 17h
Fiche Projet	Avant le 17 Février 17h
<b>Programme – du 24 Février au 13 Juillet 2011</b>	
D.T.A. « Cartographie des acteurs »	
RAP n°1	28 mars 2011
D.T.A. « Recrutement »	
RAP n°2	9 Mai 2011
D.T.A. « Bilan d'évolution et perspective professionnelle »	
RAP n°3	6 Juin 2011
D.T.A. « Structure des systèmes d'informations du projet »	
RAP générale	29 Juin 2011
Jury-Comité professionnel	13 Juillet 2011

A ces dates, s'ajouteront les dates des événements organisés par les étudiants de la Filière Ingénieur-Entreprendre, dans le cadre de leurs Travaux d'Intérêts Collectifs. Participer à l'organisation d'au moins un TIC est obligatoire pour chaque étudiant de la Filière. Vous trouverez ci-dessous une liste d'exemples non-exhaustifs de TIC :

- Week-end de l'innovation
- Week-end sport
- Règles de retards
- Barbecue
- Promotion dans les départements
- Participation REX
- Propreté des locaux & matériels
- DEFIE





## CONTACT

FILIERE INGENIEUR-ENTREPRENDRE  
BATIMENT CEI  
66 BOULEVARD NIELS BOHR  
69621 VILLEURBANNE CEDEX

TEL : 04 72 43 61 17

FAX : 04 72 43 62 67

SUIVEZ L'ACTUALITE DE LA FILIERE : [FIE.INSA-LYON.FR](http://FIE.INSA-LYON.FR)  
OU RETROUVEZ-NOUS SUR :



	Nom	Prénom	Adresse e-mail	Téléphone	Poste
Mme.	Frézal	Béatrice	<a href="mailto:beatrice.frezal@insa-lyon.fr">beatrice.frezal@insa-lyon.fr</a>	0472438159	Responsable de la FIE
Mme.	Rousseau	Marie	<a href="mailto:marie.rousseau@insa-lyon.fr">marie.rousseau@insa-lyon.fr</a>	0472436117	Assistante
M.	Darricau	Rémi	<a href="mailto:remi.darricau@insa-lyon.fr">remi.darricau@insa-lyon.fr</a>	0472436181	Assistant



Le cycle de vie de la Filière Ingénieur Entreprendre est constitué de deux grandes étapes :

- La mise en œuvre du programme pédagogique avec le recrutement, l'exécution du programme pédagogique et son retour d'expérience. Les étudiants sont les acteurs principaux de cette première étape.
- La mise à jour du programme : consolidation des équipes pédagogiques, entretien des relations avec l'écosystème et politique de communication vers les différents acteurs en lien avec la Filière Ingénieur Entreprendre.

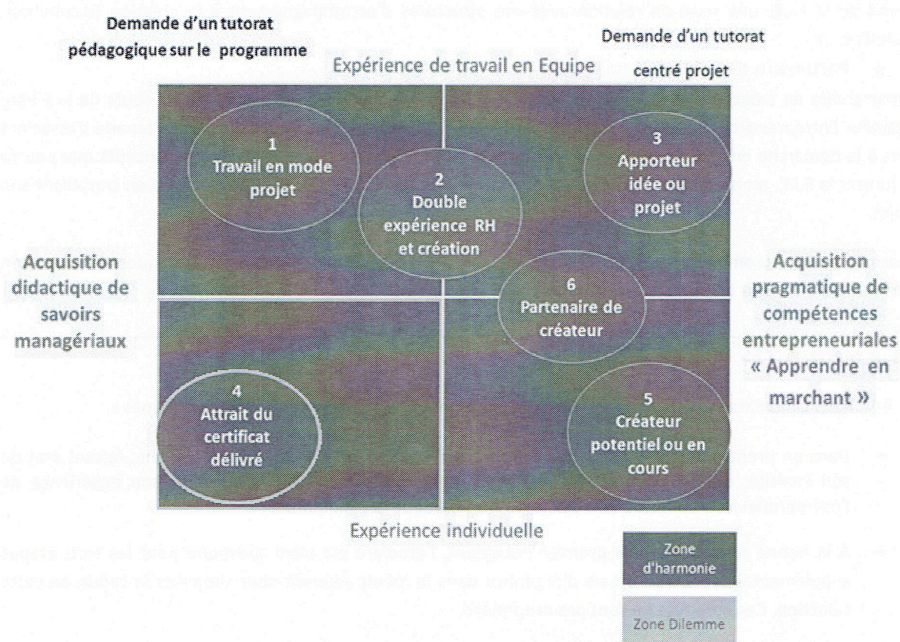
## 1 MISE EN ŒUVRE DU PROGRAMME PEDAGOGIQUE

### 1.1 SELECTION ET RECRUTEMENT DES ETUDIANTS

Avant de définir les processus de sélection des étudiants, nous précisons les différents profils des intrants à la F.I.E. INSA de Lyon<sup>2</sup> pour mieux appréhender l'hétérogénéité de la promotion en construction.

#### 1.1.1 PROFIL DES INTRANTS

La Filière Ingénieur Entreprendre étant un programme pédagogique, les motivations pour l'intégrer sont nombreuses. Les profils des intrants ont donc été catégorisés en six groupes répondant chacun à des objectifs différents.



Voici en détail les six types d'intrants définis dans l'étude par leur objectif. Cette typologie est fournie à titre informationnelle et ne prend tout son sens que replacé dans le contexte de l'INSA de Lyon.

<sup>2</sup> . Typologie conçue selon une approche phénoménologique inspirée des plans d'expérience de Richard Laddwein (2007), professeur à l'IAE de Lille

Ce manuel a été distribué dans le cadre du stage MOP Implantation n° 201119 qui s'est déroulé à Lyon (France) dans les locaux de la société INSAVALOR du 19 au 23 septembre 2011



## 1. Travail en mode projet

L'étudiant recherche à la Filière Ingénieur Entreprendre une expérience de travail en équipe sur un projet longue durée qu'il n'a pas encore eu dans sa formation. Il est donc un élément moteur dans son groupe et s'intéressera aux nombreux apports conceptuels délivrés pendant le programme.

## 2. Double expérience RH & Création

L'étudiant recherche à la Filière Ingénieur Entreprendre une expérience dans des domaines qu'il n'a pas encore découverts : la gestion des ressources humaines et le management de projet innovant. Il s'investira donc dans la gestion de son équipe et de ses éventuels stagiaires et s'intéressera aux nombreux apports conceptuels délivrés pendant le programme.

## 3. Apporteur d'idée

L'apporteur d'idée recherche à la Filière Ingénieur Entreprendre une équipe pour développer son idée. Il sera donc très intéressé par la dynamique collective qui pourrait se créer et par une acquisition pragmatique des compétences entrepreneuriales.

## 4. Attrait du certificat délivré

L'étudiant attiré par le certificat qui lui serait délivré à l'issue du programme est centré sur des objectifs individuels et pourra privilégier vers la fin du programme, sa recherche d'emploi au travail en équipe sur le projet.

## 5. Créateur potentiel ou en cours

Le créateur potentiel est un étudiant qui recherche à la F.I.E. une rampe de lancement pour son projet. Il souhaite à l'issue du programme créer sa société et est donc très intéressé par l'acquisition de compétences entrepreneuriales. Ses objectifs individuels ne seront jamais simples à concilier avec les objectifs du groupe. Il attend de la F.I.E. une mise en relation avec des structures d'accompagnement à la création (incubateur, pépinière,...).

## 6. Partenaire de créateur

Le partenaire de créateur est un étudiant qui connaîtra une évolution de ses objectifs au cours de la Filière Ingénieur Entreprendre. Conquis par le projet sur lequel il travaille ou par son porteur, le partenaire s'associera alors à la démarche entrepreneuriale du créateur. Ce profil ouvert sera intéressé par les concepts que pourra lui fournir la F.I.E. mais également par les compétences entrepreneuriales qu'il développera en travaillant son projet.

L'harmonie d'une promotion est favorisée par l'hétérogénéité des profils. L'équipe pédagogique veille dans son recrutement à assurer la multiplicité des profils.

### 1.1.2 MODALITES DE SELECTION

Les étudiants candidatant au programme sont soumis à un processus de sélection en cinq étapes :

- Dans un premier temps, le candidat doit remplir un formulaire d'inscription en ligne, faisant état de son identité, de son parcours précédant le programme, ainsi que sa vision et son expérience de l'entrepreneuriat. Ce formulaire est l'acte constitutif de la candidature
- A la bonne réception de ce premier document, l'étudiant est alors convoqué pour les trois étapes supplémentaires – qu'on essaie d'organiser dans la même journée pour simplifier la tenue de cette sélection. Ces épreuves ne sont pas ordonnées.
  - Le candidat sera invité à deux entretiens :
    - Entretien individuel : en présence d'un expert des Ressources Humaines et d'un membre de l'équipe pédagogique, l'étudiant présentera son parcours, ses objectifs.

Ce manuel a été distribué dans le cadre du stage MOP Implantation n° 201119 qui s'est déroulé à Lyon (France) dans les locaux de la société INSAVALOR du 19 au 23 septembre 2011



Le but est d'identifier le profil du candidat et de s'assurer que ce dernier est compatible avec le programme de la Filière Ingénieur Entreprendre.

- Entretien collectif : 5 à 8 étudiants sont conviés à un entretien collectif en présence de deux membres de l'équipe pédagogique. Pendant vingt minutes, les étudiants sont invités à proposer une solution collective à un problème simple (organisation des congés dans une entreprise,...). L'objectif de cet entretien est d'évaluer pour chacun sa capacité à évoluer, échanger et prendre une décision en groupe. L'équipe pédagogique se tiendra donc lors de cet entretien à l'écart du débat, se limitant à observer le comportement des étudiants.
- Le candidat est également invité à fournir à un travail écrit. Avec l'appui de deux à trois articles de revues économiques traitant d'un sujet de stratégie d'entreprise, l'étudiant rédige, en une heure, une synthèse de ces écrits et proposera ses pistes d'améliorations pour la société. L'objectif de ce travail est de s'assurer que le candidat ait suffisamment de recul et d'ouverture d'esprit pour analyser les orientations stratégiques et marketing d'une société.
- A l'issue de ces trois épreuves, le dossier du candidat est alors complet et l'équipe pédagogique peut procéder à une présélection. Il est établi trois listes :
  - Candidatures validées
  - Candidatures en attente
  - Candidatures ajournées

Les candidats sont alors être prévenus de l'état de leur candidature. Pour la valider définitivement, il est nécessaire d'obtenir l'aval de son directeur d'école ou de département. Ce n'est qu'une fois la validation du responsable pédagogique obtenue que l'étudiant sera officiellement intégré au programme. Dans le cas contraire, un courriel lui signifiera le refus de sa candidature et les raisons de cette décision.

## 1.1.3 MISE EN PLACE DU PLANNING ET DE LA COMMUNICATION

La campagne de recrutement des étudiants pour la Filière Ingénieur Entreprendre se prépare 18 mois en amont du début du programme avec pour objectif de multiplier les occasions d'informer les étudiants sur le programme de la Filière Ingénieur Entreprendre et de leur proposer un minimum de sessions de recrutement.

Il est donc nécessaire de préparer une campagne de communication et d'information de 12 à 6 mois avant le lancement du programme pour faire connaître la Filière Ingénieur Entreprendre auprès des étudiants et leur proposer l'accès au dossier de candidature à renvoyer à l'équipe pédagogique.

Cette campagne s'articule autour de deux axes :

- une communication institutionnelle pour présenter officiellement le programme de la Filière Ingénieur Entreprendre. Cette communication peut se construire sur des interventions dans des amphithéâtres pour présenter le programme, dans la newsletter de l'école ou bien encore par le biais de son site Internet. Ces présentations sont exhaustives et permettent aux étudiants de découvrir l'intégralité du programme, de ses objectifs et des opportunités pour les participants.
- une communication événementielle : l'équipe pédagogique organisera quelques événements axés sur les thématiques de l'innovation et de l'entrepreneuriat dans des lieux régulièrement fréquentés par les étudiants avec l'objectif de séduire les étudiants par une approche ludique pour, par la suite,

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présenter le programme de la Filière Ingénieur Entreprendre. Cette communication événementielle sera détaillée dans le paragraphe « Communication de la F.I.E. vers les futurs étudiants » car elle ne touche pas que les étudiants directement concernés par le recrutement mais plus généralement tous les étudiants de l'établissement.

Ces campagnes d'informations sont menées sur les campus et bien souvent, de nombreux étudiants sont en stage ou en année d'échange à l'étranger. Il est donc impératif de répartir ces actions sur au moins deux semestres pour s'assurer de toucher un maximum d'étudiants.

La campagne de communication étant menée depuis déjà quelques mois, les premières sessions de recrutement peuvent alors être organisées avec les candidats ayant déjà transmis leur dossier. Ces sessions sont planifiées en amont de la phase de communication pour faire passer un message clair. Il est donc recommandé pour une promotion d'une trentaine d'étudiants de réaliser trois sessions de recrutement et de les répartir sur 4 mois : de 8 à 4 mois avant le début du programme de la Filière Ingénieur Entreprendre.

Les quatre derniers mois précédant le programme seront nécessaires pour valider l'ensemble des candidatures des étudiants auprès de leurs directeurs et pour organiser quelques premières réunions en amont du programme pour que les étudiants puissent se rencontrer afin de préparer au mieux leur arrivée.

## 1.2 PROGRAMME PEDAGOGIQUE DE LA F.I.E.

La pédagogie développée au sein de la F.I.E. permet au participant de développer les qualités majeures nécessaires à l'entrepreneur. Il doit être capable :

- D'imaginer des concepts de produits valorisables à partir des technologies innovantes.
- D'oser transformer son concept d'offre en une activité rentable.
- De manager son projet et les équipes qu'il nécessite d'animer pour atteindre ses objectifs.
- De dresser son bilan personnel afin d'orienter au mieux son style d'animation d'équipe et de recruter les bonnes compétences.

Au sein de la Filière Ingénieur-Entreprendre, le participant doit acquérir une culture du travail en et avec une équipe. C'est pourquoi, le programme est structuré par le projet de création d'entreprise ou d'activité. Chaque projet est mené par une équipe de 2 à 4 participants. Afin d'enrichir la formation, les équipes peuvent recruter des stagiaires d'autres écoles en respectant le processus de recrutement d'un cadre. L'ensemble des apports doit trouver une concrétisation immédiate dans le projet.

Les grands concepts de l'entreprise font l'objet d'une découverte préalable par les participants avant les regroupements lors des séances de synthèse. Le projet catalyse les apports conceptuels.

Les apports du programme reposent sur 4 formes de pédagogie :

- Pédagogie de l'échange entre participants
- Pédagogie de l'accompagnement
- Pédagogie de l'autonomie
- Pédagogie collective

L'ensemble de ces intitulés est repris dans le syllabus en annexe de ce manuel.

## 1.3 RETOUR D'EXPERIENCE

Le programme de la Filière Ingénieur Entreprendre étant un programme reposant sur des projets vivants, chaque expérience est enrichissante. Mais pour proposer un programme toujours plus performant et adapté

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aux projets des étudiants, aux attentes de l'écosystème et respecter les objectifs pédagogiques du programme, il est nécessaire de pratiquer un retour d'expérience régulier de la part de l'ensemble des parties prenantes.

## 1.3.1 ORGANISATION DU RETOUR D'EXPERIENCE (REX)

Le retour d'expérience au sein du programme de la Filière Ingénieur Entreprendre se construit sur deux mécanismes :

- Un retour d'expérience régulier : chaque mois, les étudiants sont invités à faire part de leurs remarques sur les cours qui leur ont été proposés dans le mois précédant le questionnaire. L'objectif est alors d'identifier des apports redondants ou en inadéquation avec les besoins actuels des équipes-projet. Ce questionnaire est obligatoire et anonyme, dépouillé par l'équipe pédagogique. Sa synthèse est présentée en fin d'année à l'occasion du second mécanisme de retour d'expérience.
- A la fin du programme, une grande journée de retour d'expérience est organisée : journée REX. L'ensemble des parties prenantes est convié à cet événement – étudiants, intervenants, administrateurs-conseils, experts,... – avec deux objectifs pour la journée : faire une synthèse sur les retours d'expérience du programme et faire travailler en équipe les participants de cette journée pour leur faire produire des propositions d'amélioration sur des problématiques identifiées lors de la synthèse.
  - Pour proposer une synthèse pertinente, des questionnaires généraux (et non plus ciblé sur un mois précis) ont été distribués à tous les étudiants pour qu'ils puissent apprécier de manière plus globale le programme de la Filière Ingénieur Entreprendre et qu'ils puissent identifier les points faibles perçus. Un même questionnaire est proposé aux intervenants, administrateurs-conseils et experts pour qu'ils puissent exprimer leur ressenti par rapport à leur intervention dans le programme : était-ce au bon moment ? les étudiants étaient-ils sensibles aux propos de l'intervenant ? Y avait-il redondances ?... Ces deux questionnaires permettent à l'équipe pédagogique de proposer une synthèse pertinente sur l'ensemble du programme en intégrant l'ensemble des parties prenantes. La présentation de cette synthèse aux participants pourra amener à débattre et il sera toujours intéressant de ne pas fermer cet échange car toutes les propositions et nuances apportées à la synthèse permettront de mieux apprécier les remarques.
  - Une fois la synthèse présentée et les remarques associées partagées, les participants se répartissent autour de 3 à 4 thématiques préalablement sélectionnés par l'équipe pédagogique. Ayant validé les hypothèses nécessaires pour effectuer ce travail de réflexion, chaque groupe dispose alors de 3h pour construire différents scénarios, imaginer des pistes d'amélioration sur la problématique qu'il a choisie. L'équipe pédagogique circulera entre ces différents groupes. A l'issue de ces 3h de travail intensif, une restitution de chaque atelier est organisée. Ce travail de restitution entraîne généralement un débat riche et constructif.
  - Ce travail de retour d'expérience s'effectue sur une journée continue. A cet effet, la collation prend la forme d'un buffet afin de ne pas interrompre les échanges.

## 1.3.2 CONSTRUCTION DES INDICATEURS QUANTITATIFS ET QUALITATIFS

Les retours d'expériences à traiter sont de 4 types :

- Questionnaires mensuels proposés aux étudiants
- Questionnaire proposé aux étudiants en fin de programme

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- Questionnaire proposé aux intervenants, administrateurs-conseil & experts en fin de programme
- Les débats et propositions qui auront animés la journée de retour d'expérience en fin de programme.

Ces différents types de retours d'expérience sont traités différemment car leurs enseignements et leurs portées sont variés. Il est donc nécessaire de préciser pour chacun son mode de traitement et l'importance de ses enseignements.

	Questionnaire mensuel	Questionnaire étudiant	Questionnaire intervenant	Débats & Propositions
Traitement	Statistique	Statistique	Statistique	Synthèse
Portée	Organisationnelle	Pédagogique & Organisationnelle	Pédagogique & Organisationnelle	Pédagogique, Organisationnelle & Stratégique
Objectif	IdentiF.I.E.r les interventions mal planifiées.	Comparer les objectifs du programme avec le ressenti des étudiants et identiF.I.E.r les défauts organisationnels et pédagogiques de la F.I.E.	IdentiF.I.E.r les défauts du programme et de son organisation nuisant à l'adhésion des intervenants	IdentiF.I.E.r les pistes d'amélioration pour le programme de la Filière Ingénieur Entreprendre satisfaisant l'ensemble des parties prenantes.

Le traitement de ces retours d'expériences permet à l'équipe pédagogique de construire des indicateurs quantitatifs et qualitatifs pour assurer un suivi pertinent d'une année à l'autre.

## 2 MISE A JOUR DE LA F.I.E.

Pour assurer une formation toujours plus innovante et performante, la Filière Ingénieur Entreprendre doit se mettre à jour : consolider ses équipes pour pallier les départs d'intervenants et s'adapter aux modifications du programme, entretenir les relations avec l'écosystème et les anciens étudiants du programme et de l'établissement.

### 2.1 CONSOLIDER LES EQUIPES

#### 2.1.1 EQUIPE D'ENCADREMENT PEDAGOGIQUE

L'équipe étant légère, il est capital de veiller à son bon fonctionnement et s'assurer que les objectifs annuels sont en accord avec les objectifs personnels de chaque membre de l'équipe. Les besoins et les ressources ayant été clairement identifiés, il peut être pertinent de recruter des collaborateurs d'école de commerce ou de communication en stage de 2 à 6 mois pour assister l'équipe sur des tâches que l'on peut aisément déléguer comme la mise en place de la campagne de communication et de recrutement. Cette aide ponctuelle offre à l'équipe, l'opportunité de concentrer ses efforts sur l'encadrement des élèves et les réflexions pédagogiques.

#### 2.1.2 INTERVENANTS, ADMINISTRATEURS CONSEILS, EXPERTS

Pendant toute l'année, l'équipe pédagogique de la Filière Ingénieur Entreprendre joue le rôle de « chasseur de têtes » pour consolider ses équipes, autant l'équipe d'intervenants que les administrateurs conseils ou les experts. Pour effectuer ce recrutement, l'équipe pédagogique est présente aux événements organisés au niveau local ou national autour de l'innovation et de l'entrepreneuriat pour activer ces différents réseaux dans la recherche de ses profils. L'équipe cherche à enrichir le portefeuille de compétences de ses équipes pour offrir l'accompagnement le plus complet à ses étudiants.

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Pour s'assurer de la pertinence de ces intervenants et administrateurs conseils, il est pertinent de « tester » ces profils avec le modèle des « Rencontre Avec ». Sur un créneau de deux heures, les personnes pressenties présentent leur expérience, leur vision de l'entrepreneuriat et multiplie les anecdotes. Cette « Rencontre Avec » est un excellent moyen d'évaluer l'intervenant en bénéficiant des retours des étudiants.

## 2.2 ENTRETIEN DES RELATIONS AVEC L'ECOSYSTEME

La Filière Ingénieur Entreprendre est inscrite dans l'écosystème entrepreneurial et est donc en relation avec les institutions et les partenaires de ce secteur. Ces liens constituent un excellent moyen pour identifier des experts (cf. « Consolider les équipes ») mais également pour offrir aux étudiants un accompagnement à l'issue du programme. Il est donc capital d'entretenir de bons contacts avec l'ensemble des institutions et des entreprises.

Pour ce faire, l'équipe pédagogique travaille sur deux points :

- S'impliquer dans les événements organisés au sein de l'écosystème par les partenaires : concours de création d'entreprises, forums, salons,... L'implication sera double : publicité et communication autour des événements et participation des étudiants et de l'équipe pédagogique aux événements.
- Inviter les membres de l'écosystème à participer à la vie du programme : lors des revues de projets, des comités de validation ou des jurys finaux, il sera bon de contacter quelques professionnels de l'écosystème avec également un double objectif : valoriser le travail effectué par les étudiants de la Filière et donc valoriser la qualité du programme et faire découvrir aux étudiants les acteurs-clés de l'écosystème : les partenaires institutionnels – CCI, établissement,... – et partenaires capitaux pour l'accompagnement des entreprises en création – financiers, juristes, syndicats d'entreprises...

## 2.3 INTEGRATION DES DIPLOMES DANS LE RESEAU

Parce que la richesse de la Filière Ingénieur Entreprendre repose sur le partage d'expérience des jeunes et moins jeunes entrepreneurs, il est important d'intégrer ces derniers dans le réseau de la Filière Ingénieur Entreprendre. Qu'ils soient des anciens du programme ou simplement des chefs d'entreprises issus de l'établissement, la Filière peut leur apporter des réponses, tout comme ces derniers peuvent partager leur expérience avec les étudiants et parfois également subventionner le programme.

### 2.3.1 ANCIENS DU PROGRAMME F.I.E.

Les anciens étudiants du programme ont pour beaucoup goûté au moins une fois à la création d'entreprise et leur expérience est très enrichissante pour les étudiants du programme en cours. L'équipe pédagogique se doit donc de multiplier les rencontres entre anciens et étudiants actuels. La remise des certificats est une excellente occasion pour réunir l'ensemble de ces entrepreneurs mais le format des « Rencontre Avec » ou du « Parrainage » de la promotion est également judicieux, permettant de cadrer les échanges et d'en faire profiter le plus grand nombre.

Pour que les anciens du programme s'impliquent dans ce partage d'expérience, il est nécessaire qu'ils y trouvent leur intérêt. Dans ce sens, la Filière Ingénieur Entreprendre propose des services à ces entrepreneurs : accompagnement dans la création, ouverture du réseau, hébergement provisoire... Autant de petits « coups de pouce » qui inciteront les anciens du programme à donner des nouvelles de leurs entreprises à la Filière et à s'impliquer dans la vie du programme.

### 2.3.2 DIPLOMES DE L'ETABLISSEMENT

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De nombreux anciens étudiants de l'établissement ont lors de leur expérience professionnelle atteint des postes de responsables d'activités, de chefs d'entreprise, voire même de créateurs d'entreprises, sans pour autant avoir bénéficié de la formation de la Filière Ingénieur Entreprendre. C'est donc pour la plupart une surprise de découvrir ce programme innovant qu'ils auraient souhaité suivre pour éviter les premiers écueils dans le pilotage d'une entreprise.

C'est avec beaucoup de curiosité et de plaisir que ces entrepreneurs viennent partager leur expérience, souvent plus riches que les anciens étudiants du programme, puisque ils sont plus âgés que ces derniers. Leur statut se rapproche souvent du parrain / mécène car ces entrepreneurs ont également la volonté de développer cette pédagogie de l'entrepreneuriat, étant conscients de l'importance d'un tel programme pour compléter la formation des étudiants.

Pour entretenir les relations avec ces entrepreneurs, l'équipe pédagogique applique le même modèle que pour l'entretien des liens avec l'écosystème : invitation aux événements du programme, relai des nouvelles des différentes entreprises de ces anciens étudiants, publicité,...

## 2.4 COMMUNICATION DE LA F.I.E.

La Filière Ingénieur Entreprendre est une entité isolée dans la formation d'un ingénieur ou dans une formation universitaire, il est donc nécessaire de bien communiquer autour de la vie du programme et de ses objectifs, en direction de l'ensemble des parties prenantes.

En accord avec les objectifs de la Filière Ingénieur Entreprendre, l'équipe pédagogique établie et met à jour chaque année son plan de communication définissant le but de chaque action de communication. Il se segmente en deux entités : d'une part, la communication interne à l'établissement à destination des futurs étudiants, de l'équipe d'intervenants, des anciens de l'établissement, et de l'établissement en tant que tel, et d'autre part, la communication externe à l'établissement vers les institutionnels.

### 2.4.1 EN INTERNE

#### VERS LES FUTURS ETUDIANTS

Cible	Futurs étudiants
Objectifs	Recrutement & Sensibilisation à l'Innovation et l'Entrepreneuriat
Canal de communication	E-mailing, Affichage & Événementiel
Description	Les étudiants ne connaissent pas la Filière Ingénieur Entreprendre et ne sont pas sensibilisés pendant leur formation à l'innovation et l'entrepreneuriat. La communication à destination des étudiants potentiels du programme s'articule donc sur deux plans : un mode de communication classique e-mailing et affichage dans l'établissement pour faire passer des informations standards comme les dates de recrutement, les objectifs de la Filière, l'adresse du site Internet pour avoir plus de renseignement... et un mode de communication plus innovant et surtout plus adapté à un public étudiant : l'événementiel. Par des événements comme « les 24 heures de l'innovation » ou bien des happenings dans les lieux les plus fréquentés de l'établissement.

#### 2.4.2 VERS L'EQUIPE D'INTERVENANTS

Cible	Intervenants, Administrateurs-Conseils, Experts
Objectifs	Information & Consolidation du sentiment d'appartenance

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<b>Canal de communication</b>	E-mailing & Évènementiel, intranet programme F.I.E
<b>Description</b>	<p>L'équipe d'intervenants, administrateurs-conseils et experts sont très intéressés par la vie de la Filière, mais il n'est pas simple pour eux de se tenir informé car leur mission à la Filière Ingénieur Entreprendre ne représente que quelques heures par an dans leur planning professionnel. Cette présence partielle complique la construction d'une équipe d'intervenants. Pour encourager les échanges entre les intervenants, l'équipe pédagogique tiendra régulièrement informés les intervenants de la vie de la Filière et de ses projets. Pour compléter cette communication classique, trois à quatre « veillées » seront organisées pendant la durée du programme pour multiplier les contacts entre les intervenants et avec les étudiants également pour créer une réelle promotion tenant compte de l'équipe d'intervenants.</p> <p>Leur donner l'occasion de pouvoir s'informer et communiquer avec leur équipe ou avec l'équipe d'encadrement par le biais d'un intranet F.I.E est un facteur réel de cohésion et de sentiment d'appartenance pour ces intervenants.</p>

## 2.4.3 VERS L'ETABLISSEMENT

<b>Cible</b>	Etablissement
<b>Objectifs</b>	Information & Valorisation des projets, du programme et de l'établissement
<b>Canal de communication</b>	E-mailing, Blogging & Évènementiel
<b>Description</b>	<p>Les relations avec l'établissement s'établissent sur deux plans :</p> <ul style="list-style-type: none"> <li>- Une communication en interne pour justifier l'investissement que représente un tel programme : invitation aux jurys, aux remises des certificats mais également aux événements organisés comme les concours internes d'entrepreneuriat (« les 24 heures de l'Innovation et de l'Entrepreneuriat » à l'INSA de Lyon), blogging pour présenter des nouvelles des entreprises créées par le biais de la Filière Ingénieur Entreprendre.</li> <li>- Enfin, un programme comme la Filière Ingénieur Entreprendre est une formation innovante et performante. C'est donc un excellent moyen pour l'établissement de valoriser ses formations innovantes : toutes les informations sur les projets en cours (dans le respect de la confidentialité des informations) ainsi que l'actualité des entreprises déjà créées seront transmis à la direction de la communication de l'établissement pour qu'il alimente son blog ainsi que ses différentes revues.</li> </ul>

## 2.4.4 VERS LES ANCIENS

<b>Cible</b>	Anciens étudiants de la F.I.E.
<b>Objectifs</b>	Fidélisation & Implication
<b>Canal de communication</b>	E-mailing, Blogging & Évènementiel
<b>Description</b>	<p>La communication vers les anciens étudiants du programme a pour objectif de ne pas perdre leur trace et de les mobiliser pour les inciter à partager leur expérience dans le programme et valoriser la Filière en illustrant les réussites du programme. Par le biais de l'E-mailing et d'une forte présence sur les réseaux sociaux, la Filière gardera contact avec anciens étudiants.</p> <p>Le blogging et l'évènementiel ont pour objectif d'impliquer les anciens étudiants dans la vie du programme. Ils seront invités à témoigner lors de la remise des certificats et à donner des nouvelles de leurs aventures sur le blog de la Filière. L'objectif est de valoriser leur création et de favoriser les échanges avec les étudiants de la promotion.</p>

## 2.4.5 EN EXTERNE

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## VERS LES INSTITUTIONNELS

Cible	Institutionnels
Objectifs	Accompagnement des étudiants à l'issue du programme
Canal de communication	Evènementiel
Description	Les institutionnels externes à l'établissement sont capitaux dans l'accompagnement des projets à l'issue du programme. C'est donc dans ce sens que la communication du programme doit s'articuler. Pour faciliter ce « passage de relais » à l'issue de la Filière, il est donc pertinent d'inviter les institutionnels à participer au comité de sélection des projets et au jury final du programme car les projets ayant satisfaits le jury ont sans difficulté un accès aux structures d'accompagnement des institutionnels.

## VERS LES PARTENAIRES – FINANCEURS

Cible	Partenaires & Financeurs
Objectifs	Recrutement & Implication
Canal de communication	E-mailing & Evènementiel
Description	Les partenaires financeurs sont très peu sollicités pendant le programme et pourtant ils contribuent au développement des projets du programme en ouvrant leurs réseaux aux étudiants. La Filière s'attache donc à entretenir de bonnes relations avec ces différents partenaires pour s'assurer de leur implication. Des campagnes d'E-mailing régulières maintiennent un contact de qualité avec ces partenaires : elles portent sur les projets mais également de l'évolution du programme. Cette communication régulière permet également à l'équipe pédagogique d'entrer en contact avec de nombreux profils intéressants pour la consolidation des équipes. Les interlocuteurs sont très nombreux et aux profils variés, il est donc nécessaire d'effectuer une communication généraliste auprès de ce public pour sensibiliser le plus grand nombre, puis enrichir les contacts en entrant en relations directes avec les individus les plus intéressants.

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## **C PEDAGOGIE**

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## APPRENDRE A ENTREPRENDRE

*« J'ai refait tous les calculs, notre idée est irréalisable, il n'y a plus qu'à le faire »*

*P-G LATECOERE, CREATEUR DE L'AEROPOSTALE.*

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# Filière Ingénieur Entreprendre



En reprenant l'approche des compétences développées par Guy Le Boterf<sup>3</sup>, la Filière Ingénieur Entreprendre a pour ambition de développer des compétences dans le sens de « savoir agir », c'est-à-dire savoir mobiliser, intégrer, transférer des ressources dans un contexte professionnel. La mobilisation de ces « savoir agir » implique de savoir combiner les compétences et également de « savoir apprendre ».

Ainsi, la Filière Ingénieur Entreprendre n'a pas pour objectif de former des experts en entrepreneuriat mais des entrepreneurs conscients de leurs faiblesses et sachant y remédier en faisant intervenir des ressources externes. C'est dans cet esprit qu'a été conçu le référentiel des compétences couvertes par le programme F.I.E.

## 1 REFERENTIEL DES COMPETENCES COUVERTES PAR LE PROGRAMME F.I.E.

REFERENTIEL D'ACTIVITES		REFERENTIEL DE CERTIFICATION		
ACTIVITE et TACHES	COMPETENCES ASSOCIEES AUX ACTIVITES ET TACHES	COMPETENCES OU CAPACITES QUI SERONT EVALUEES	MODALITES D'EVALUATION	CRITERES D'EVALUATION
<b>Phase1 : de l'idée au pré-projet entrepreneurial</b> ✓ Expression de l'idée ✓ Contexte ✓ Enjeux ✓ Innovation ✓ Attentes pressenties ✓ Technologies mobilisables	Etre capable de ✓ Acquérir les concepts de <ul style="list-style-type: none"> <li>• Entreprendre</li> <li>• Opportunité d'affaires</li> <li>• Plan d'affaires</li> <li>• Stratégie</li> <li>• Politique générale</li> </ul> ✓ Détecter une opportunité d'affaires à partir d'une idée initiale ✓ Analyser une idée d'affaires en la replaçant dans son contexte <ul style="list-style-type: none"> <li>○ Concurrentiel</li> <li>○ Technologique</li> </ul> ✓ Transformer le pré-projet en un projet entrepreneurial	Concevoir un document écrit synthétique sur chacun des concepts précités	Rédaction de 3 rapports synthétiques appelés « mémo » de 5 pages maximum sur les thématiques <ul style="list-style-type: none"> <li>• Entreprendre</li> <li>• Opportunité d'affaires et plan d'affaires</li> <li>• Vision stratégie et politique de l'entreprise</li> </ul>	<ul style="list-style-type: none"> <li>• Identification d'une problématique</li> <li>• Argumentation de réponse à la problématique</li> <li>• Qualité de la rédaction (fond et forme)</li> <li>• Référencement et qualité de la recherche bibliographique associée</li> </ul>
	2.1.1 Détecter les compétences individuelles nécessaires au projet	Présenter le pré-projet entrepreneurial et démontrer l'opportunité d'affaires	Mise en situation : présentation orale du pré-projet entrepreneurial devant un jury	<ul style="list-style-type: none"> <li>• Identification d'indicateurs du potentiel d'affaires du pré-projet</li> <li>• Pertinence de</li> </ul>

<sup>3</sup> Le Boterf Guy Ingénierie et évaluation des compétences (Broché - 5 janvier 2011)

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	Identifier les valeurs partagées autour du projet			ces indicateurs
Phase 2 : Piloter le projet entrepreneurial	2.1.2 définir des objectifs spécifiques, adaptés et mesurables dans le temps pour le projet affecter les activités aux équipiers Définir des modalités de fonctionnement du groupe			• Aptitude à justifier un caractère innovant dans le pré-projet entrepreneurial
2.1 Piloter l'équipe projet	2.1.3 fédérer l'équipe autour du projet Utiliser son leadership, pour susciter l'adhésion	Capacité à travailler en équipe	Entretien d'évaluation de progrès de l'équipe « vie d'équipe » préparé par un support écrit	• Capacité à convaincre
2.1.1 Construire l'équipe projet	2.1.4 Capacité d'écoute Trouver sa place au sein de l'équipe Développer sa capacité contributive au groupe Etre force de proposition S'investir dans le projet Identifier son rôle et adopter une posture S'auto-évaluer	Ecoute Capacité à gérer son équipe Capacité à exercer un leadership		• Niveau d'approfondissement du contexte de l'idée
2.1.2 Conduire l'équipe projet		Contribution active à l'effort du groupe		• Répartition équilibrée entre une vision globale et détaillée du pré-projet
2.1.3 Motiver l'équipe projet	2.2.1 Définir et appliquer un mode de management Maîtriser les outils de gestion de projet Choisir une méthodologie de gestion de projet			Entretien oral de groupe avec un des membres de l'équipe pédagogique : Mesure des écarts entre objectifs et réalisés et plan d'action
2.1.4 : Travailler en équipe projet	2.2.2 appliquer la méthodologie de gestion de projet			
	2.2.3 maîtriser les méthodes de prise de décision			
2.2 Gérer le projet	Choisir les modalités de communication interne et externe à l'équipe			
2.2.1 Organiser le projet		2.2 Utilisation des outils de gestion de projet au service du projet de création d'activité	2.2 Construction d'un document de traçabilité de l'intégration des outils dans la gestion de chaque projet (« dossier gris » comprenant les comptes rendus de réunions et d'entretiens, le cahier des charges des études de marché, les guides d'entretiens, et	
2.2.2 Gérer le projet				
2.2.3 Décider				

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Phase3 : Bâtir le projet entrepreneurial	3.1.1 Maitriser les méthodes de créativité		questionnaires, l'intégralité des sources documentaires utilisés pour la prise de décision, les modalités de fonctionnement de l'équipe .....	
	Etablir une cartographie des acteurs pertinents	Capacité à argumenter les prises de décision	2.2 La revue de projet n° 1 « orientation du projet »	
	3.1.3 .Maitriser les techniques d'étude et d'analyse de marché Conduire des entretiens d'experts Maitriser les outils de recherche d'information sur internet			
	3.1.1 Elargir la vision globale du projet			
	3.1.2 Identifier des parties prenantes	3 Capacité à imaginer des solutions innovantes	D.T.A : Dossier Technique Appliqué « marathon de l'innovation »	Etat d'avancement du projet au regard de la thématique
	3.1.3 Valider l'opportunité d'affaires	Capacité à formaliser la cartographie des acteurs du projet	D.T.A Dossier Technique Appliqué : « cartographie des acteurs »	Pertinence des indicateurs présentés par rapport à la thématique
	3.1.4. Concevoir l'offre	Capacité à élaborer un plan de recherche d'informations nécessaires à la prise de décision Capacité à choisir les méthodes de recueil d'informations adéquate.	Revue de projet n°2 « observer, décrire, étudier son marché »	Capacité à élargir la thématique
	3.1.5 Etablir les hypothèses financières et les valider	Etre capable de définir le meilleur cadre juridique  Evaluer les partenariats potentiels pour le projet  Etre capable de négocier avec les partenaires internes et externes au projet		Capacité à respecter le temps imparti
		Appliquer l'analyse fonctionnelle au projet	Livrable du dossier gris	Capacité à présenter un visuel clair précis et convaincant
		Etablir des	Elaborer : un plan de	Capacité à créer un concept innovant ex nihilo en temps limité et à le rendre crédible lors d'une présentation orale.

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3.1.6. Choisir le cadre juridique du projet		hypothèses financières Dimensionner des investissements Calculer un seuil de rentabilité Identifier les ressources financières nécessaires au projet Etablir la gestion de trésorerie prévisionnelle	financement initial, un plan de financement sur 3 ans un compte de résultat sur 3 ans un calcul de seuil de rentabilité des calculs de ROI tableau de bords prévisionnels de gestion de l'activité post création	Pertinence du champ couvert et des acteurs identifiés
3.1.7 Convaincre et Négocier avec toutes les parties prenantes	Discernement dans les choix stratégiques  Etre capable de présenter la synthèse du projet de création d'activité			Etat d'avancement du projet au regard de la thématique n°2 Pertinence des indicateurs présentés par rapport à la thématique Capacité à élargir la thématique Capacité à respecter le temps impartis Capacité à présenter un visuel clair précis et convaincant
Phase 4 : Livraison du projet et bilan			un Livrable du plan d'affaires	
Validation des hypothèses		Pertinence du choix au regard de l'activité et des contraintes du projet et intégration au sein du plan d'affaires	Mises en pratiques de situations de négociations ✓ Commerciale ✓ Financière ✓ Managériale	Exhaustivité, pertinence de l'analyse fonctionnelle au regard du projet
Présentation du plan d'affaires				
Plan d'action du pré-lancement du projet		Capacité à bâtir un plan de négociation Maîtriser toutes les phases d'un entretien de négociation	Soutenance devant un jury final d'experts de la création d'entreprise, de membres de l'encadrement et de membres académiques de l'institution.	315 Cohérence, niveau de réalisme et pertinence des indicateurs et tableaux
Retour d'expérience Au niveau individuel Au niveau du projet		Capacité à prendre du recul par rapport au projet Choix entrepreneurial : Capacité décisionnelle sur la création réelle d'activité Capacité à concevoir une	Remise d'un rapport « plan d'affaires »  Présentation technique du plan d'affaires	Cohérence du choix de la structure juridique avec les

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stratégie de repli  
au niveau du  
projet ou  
individuel.

Mise à disposition  
du dossier gris

objectifs, les  
risques et les  
enjeux du porteur  
de projet

Capacité de  
l'équipe à  
présenter de  
façons orale et  
écrites  
l'intégralité de  
ses travaux et de  
ses résultats  
Capacité à se  
projeter dans  
l'avenir et  
mettre le projet  
en perspectives.

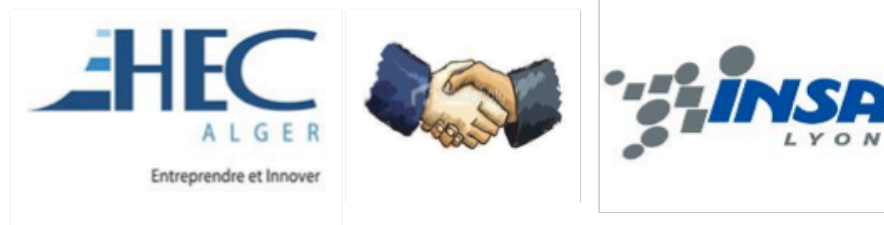
Jeux de rôles  
filmés, analysés et  
débrieés

Cohérence globale  
du projet et des  
décisions prises

Faisabilité  
économique  
Vraisemblance  
technologique  
Crédibilité du  
projet  
Capacité à  
convaincre les  
membres du jury  
par la prestation  
orale et la  
prestation écrite

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## BILAN DE LA **FIE** HEC

### **FILIERE INNOVATION ENTREPRENDRE**

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*Février à Juin 2014 à HEC Alger*

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Maitre Assistante à HEC Alger (ex INC)  
Responsable FIE HEC Alger  
Membre du laboratoire de recherche MERKATINIG et TIC  
Doctorante-enseignante chercheur en Marketing



Maitre Assistante à HEC Alger (ex INC)  
Coordinatrice FIE HEC Alger  
Membre du laboratoire de recherche MERKATINIG et TIC  
Doctorante-enseignante chercheur en Marketing



## **PLAN DE TRAVAIL**

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### **Introduction :**

Traditionnellement, HEC Alger dispense un savoir général et théorique qui ne permet pas nécessairement la création immédiate de richesse. Cependant, de par la nouvelle conjoncture économique et sociale, sa mission ne doit plus être restreinte à l'enseignement et la recherche mais plutôt à la sélection, l'accompagnement et l'évaluation des projets entrepreneuriaux.

De ce fait, HEC (et l'université en général) d'aujourd'hui est interpellée pour devenir un acteur clé du développement en produisant un savoir utile et faire émerger un esprit entrepreneurial. Cet esprit d'entreprise se réfère à l'aptitude d'un individu de concrétiser ses idées par des actes et de se projeter tout en anticipant les risques. L'importance du rôle de l'enseignement dans l'encouragement d'attitudes et de comportements plus entrepreneuriaux est donc de plus en plus reconnue.

### **Présentation de la FIE :**

La FIE (Formation Innovation Entreprendre) est une formation des étudiants à entreprendre durant leur cursus pédagogique qui s'appuie sur des projets vivants permettant de faire appréhender et assumer les risques à propos à l'entreprise. Elle joue le rôle de pré-incubateur pour les élèves en dernière année dont le projet professionnel est de créer leur entreprise ou activité.

La Formation Innovation Entreprendre est centrée sur le potentiel, l'envie d'un individu étudiant d'inscrire un projet entrepreneurial à un moment de son parcours professionnel pas forcément en sortie d'école, et uniquement comme créateur d'entreprise mais aussi comme intra preneur ou repreneur futur.

C'est un révélateur de potentiel de l'individu et pour ceux qui ont un projet pour immédiat, d'opportunité d'affaires. La FIE est aussi un lieu de rencontre entre des profils ouverts à des opportunités professionnelles et des créateurs en herbe pouvant déboucher sur des constitutions d'équipes dès les prémices du projet.

**I- Liste des équipes projets :**



**Equipe 1 : MEDICALOOK**

Porteur de projet [redacted] lina (ESI)

**Accompagnateurs : (HEC)**

- [redacted] khereddine
- [redacted] Mehdi
- [redacted] Faycel



**Equipe 2 : CREATIVE BOX**

Porteur de projet [redacted] Nedjmeddine

**Accompagnateurs :**

- [redacted] Walid
- [redacted] Islem
- [redacted] Sarah



**Equipe 3 : GOLDEN FRITE**

Porteur de projet [redacted] Oussama

**Accompagnateurs :**

- [redacted] Ibrahim Oussama
- [redacted] Yacine
- [redacted] Karim

Des Administrations Conseils (AC) ont été désignés pour chaque équipe :

- [redacted] Mourad : AC de l'équipe 2
- [redacted] Samy : AC de l'équipe 3
- [redacted] E Radia : AC de l'équipe 1.

**II- Liste des intervenants et leurs modules :**

Enseignant	Profil	Intitulé du cours
Mme [REDACTED] Amel	Enseignante à HEC Alger	Remise des résumés de projets
M [REDACTED] Hervé	Représentant de FIE Fr	Pitch avec les groupes à ENSV
M [REDACTED] Hassen	Enseignant à HEC Alger	Etudes de marché
M [REDACTED] Hichem	Enseignant à HEC Alger	Intelligence économique
M [REDACTED] Cherif	Enseignant à HEC Alger	Géo économie
M [REDACTED] Yves	Représentant de FIE Fr	Prise de décision (jeu BY5) à ENSV
M [REDACTED] Mohamed	Chef de service à la BADR Banque et enseignant à INSIM Blida	- Plan de financement - Financement d'entreprise - Comment lire un bilan?
M [REDACTED] Hafid	Responsable formation a FR	La négociation
M [REDACTED] Fella	Enseignante à HEC Alger	Parties prenantes
[REDACTED] Brahim	Conférencier	t-start (Ooredoo)
M [REDACTED] Samy	Enseignant à INSIM Blida	Analyse financière
M Hervé [REDACTED] et Sébastien [REDACTED]	Représentants de FIE Fr	Marketing de l'innovation
M [REDACTED] Mourad	Chef de service à la BADR Banque et enseignant à INSIM Tizi Ouzou	Stratégie d'entreprise
M [REDACTED] Amine	Responsable à ANSEJ	-Source de Financement -Cadre juridique
M.MOHAMED Yacine	Directeur de boîte de communication Bleucorp	Recrutement et rédaction de CV

**Conférences :**

Nom et prénom	Profil	Thème
M. Malik [REDACTED]	Directeur à Trust Bank Algeria	La Banque actuelle
M SLIM [REDACTED]	Directeur NSA Rouiba	Be innovative camp
M. Raouf [REDACTED] et Hakim [REDACTED]	Fondateurs et Gérants d'une agence de voyage (All-Ways Travel)	Le tourisme (ESSIYAHA) : opportunités d'investissement en Algérie
[REDACTED] Rym	Public Relations & Média specialist	Mon métier et mon expérience dans les RP.
M. [REDACTED] Karim	Directeur associé à OnMarket	Les nouvelles tendances en matière d'investissements dans le domaine du Webmarketing
M. Walid [REDACTED]	Business planning & consumer insights Manager chez Philip Morris	Market Research
M Karim [REDACTED]	General Manager à Lotus Conseil	L'entrepreneuriat dans la communication: Comment lancer, gérer et faire évoluer sa boîte de communication.

**III-Liste des membres de jurys des RAP :**

Membre	Profil
Mme [REDACTED] Radia	Administrateur Conseil de l'équipe "MEDICALOOK"
Mlle [REDACTED] Nawel	Enseignante à HEC
[REDACTED] I	Cadre à la BADR Chéraga
M [REDACTED] Mounir	Informaticien à HP
M [REDACTED] Mourad	Administrateur Conseil de l'équipe "Créative Box"
M [REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
M [REDACTED] Samy	Administrateur Conseil de l'équipe "Golden Frite"
M [REDACTED] Ali	Directeur de INSIM Blida
M [REDACTED] Hassen	Enseignant à HEC Alger
M [REDACTED] Malik	Directeur commercial à SYNPED
Mme Béatrice [REDACTED]	Responsable FIE FR
M [REDACTED] Farida	Responsable des relations publique à l'hôtel Sheraton
M [REDACTED] Imène	Enseignante Vacataire à HEC Alger
M [REDACTED] Tarek	Informaticien à la BADR Charaga

**IV-Liste des membres de jury pour la soutenance finale :**

Membre	Statut
Mme [REDACTED] Radia	Administrateur Conseil de l'équipe "MEDICALOOK"
M. Hervé [REDACTED]	Représentant de FIE FR
Mlle [REDACTED] Lamia	Enseignante à INSIM Blida
M. [REDACTED] Faouzi	Enseignant à HEC Alger
M [REDACTED] Mourad	Administrateur Conseil de l'équipe "CREATIVE BOX"
M [REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
M [REDACTED] Samy	Administrateur Conseil de l'équipe "GOLDEN FRITE"
M [REDACTED] Ali	Directeur de INSIM Blida
[REDACTED] Hassen	Enseignant à HEC Alger





Après le passage de tous les groupes FIE HEC et après délibération du jury, ce dernier à désigner :

- 1<sup>re</sup> place : l'équipe projet " MEDICALOOK" avec une note de 7.75/10
- 2<sup>de</sup> place : l'équipe projet " CREATIVE BOX" avec une note de 7.25/10
- 3<sup>de</sup> place : l'équipe projet " GOLDEN FRITE" avec une note de 6.42/10







**V- Evaluation individuelle des membres de l'équipe de chaque projet :**





**Projet 1 : MEDICALOOK**

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
 Lyna	03.75/5	03.75/5	07.75/10	15.25/20
 Kheiredine	03.00/5	03.50/5	07.75/10	14.25/20
 Faycel	03.50/5	03.00/5	07.75/10	14.25/20
 Mehdi	03.50/5	03.00/5	07.75/10	14.25/20

**Projet 2 : CREATIVE BOX**

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
 Nedjmeddine	03.50/5	04.00/5	07.25/10	14.75/20
 Walid	03.75/5	03.75/5	07.25/10	14.75/20
 Islem	03.75/5	03.50/5	07.25/10	14.50/20
 Sahar	02.50/5	03.50/5	07.25/10	13.25/20

**Projet 3 : GOLDEN FRITE**

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
 Oussama	03.75/5	03.00/5	06.42/10	13.17/20
 Oussama	03.00/5	03.50/5	06.42/10	12.92/20
 Yacine	02.50/5	03.50/5	06.42/10	12.42/20
 Abdelkarim	03.00/5	03.50/5	06.42/10	12.92/20

#### IV- La synthèse générale :

Dans le cadre de partenariat avec INSA Lyon, une formation Innovation Entreprendre" FIE s'est tenue au sein des locaux de HEC Alger allant du mois de Février à juin 2014.

L'objectif de l'équipe d'étudiants est de tester la faisabilité et la viabilité tant technologique qu'économique de l'idée initiale dans la perspective d'un projet d'entreprise. Cette mise en situation réelle permet aux étudiants d'acquérir en équipe une véritable expérience entrepreneuriale tout en accélérant leur formation d'ingénieur : ils gagnent ainsi 05 mois d'expérience professionnelle

Le groupe été composé de 12 participants représentant ainsi les écoles supérieures algériennes suivantes : EHEC (11) et ESI (01). La formation s'est tenue dans les locaux de HEC Alger.

La FIE HEC s'appuie sur des points forts:

- Une démarche de **maturation** en profondeur qui concerne autant les étudiants que les idées technologiques
- Un **fort accompagnement** qui donne une impulsion continue au projet
- Un **appui technologique**, tant sur les phases amont (émergence, prototypage) que sur les phases proches de la commercialisation (industrialisation)

Cette formation s'est terminée avec la remise des attestations aux participants tout en insistant sur la création de ce projet avec comme principal slogan :

***"Etudiant aujourd'hui, entrepreneur demain"***

**Nous contacter :**

**Ecole des Haute Etudes Commerciales HEC Alger**

11, rue DOUDOU Mokhtar, Ben Aknoun, Alger.

E-mail : [dginc@wissal.dz](mailto:dginc@wissal.dz) Fax : 021.91.54.51 Tél. : 021.91.54.51

-Responsable FIE HEC : Mlle DEMMOUCHE Nedjouda

[demmouchenedjouda@yahoo.fr](mailto:demmouchenedjouda@yahoo.fr)

- Coordinatrice FIE HEC : Mme SAIDANI Amel

[amelsaidani@yahoo.fr](mailto:amelsaidani@yahoo.fr)



**"FAMILLE FIE HEC 2014"**



## BILAN DE LA **FIE** HEC

### ***FILIERE INNOVATION ENTREPRENDRE***

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*Février à Juin 2015 à HEC Alger*

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***Mlle Nedjoud DEMMOUCHE***

Maitre de conférences à HEC Alger (ex INC)

Responsable FIE HEC Alger

Membre du laboratoire de recherche MERKATINIG et TIC

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## **PLAN DE TRAVAIL**

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### **Introduction :**

Traditionnellement, HEC Alger dispense un savoir général et théorique qui ne permet pas nécessairement la création immédiate de richesse. Cependant, de par la nouvelle conjoncture économique et sociale, sa mission ne doit plus être restreinte à l'enseignement et la recherche mais plutôt à la sélection, l'accompagnement et l'évaluation des projets entrepreneuriaux.

De ce fait, HEC (et l'université en général) d'aujourd'hui est interpellée pour devenir un acteur clé du développement en produisant un savoir utile et faire émerger un esprit entrepreneurial. Cet esprit d'entreprise se réfère à l'aptitude d'un individu de concrétiser ses idées par des actes et de se projeter tout en anticipant les risques. L'importance du rôle de l'enseignement dans l'encouragement d'attitudes et de comportements plus entrepreneuriaux est donc de plus en plus reconnue.

### **Présentation de la FIE :**

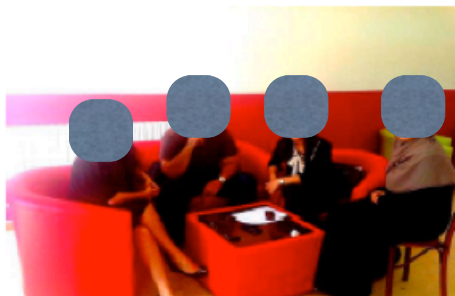
La FIE (Formation Innovation Entreprendre) est une formation des étudiants à entreprendre durant leur cursus pédagogique qui s'appuie sur des projets vivants permettant de faire appréhender et assumer les risques propres à l'entreprise. Elle joue le rôle de pré-incubateur pour les élèves en dernière année dont le projet professionnel est de créer leur entreprise ou activité.

La Formation Innovation Entreprendre est centrée sur le potentiel, l'envie d'un individu étudiant d'inscrire un projet entrepreneurial à un moment de son parcours professionnel pas forcément en sortie d'école, et uniquement comme créateur d'entreprise mais aussi comme intra preneur ou futur.  
repreneur

C'est un révélateur de potentiel de l'individu et pour ceux qui ont un projet pour immédiat, d'opportunité d'affaires. La FIE est aussi un lieu de rencontre entre des profils ouverts à des opportunités professionnelles et des créateurs en herbe pouvant déboucher sur des constitutions d'équipes dès les prémices du projet.



# I- Liste des équipes projets :



## Equipe 1 : ISOLIVE

Porteur de projet [redacted] Mansour

### Accompagnateurs :

- Meriem [redacted]
- [redacted] Nassima
- [redacted] Thiziri
- [redacted] Souad



## Equipe 2 : Houriyati

Porteur de projet Akrem [redacted]

### Accompagnateurs :

- [redacted] Abdelkhalek
- [redacted] Maya
- [redacted] Walid
- [redacted] Kacia



## Equipe 3 : Nélia

Porteur de projet [redacted] Nariméne

### Accompagnateurs :

- [redacted] Said
- Brahim [redacted]
- [redacted] Meriem
- [redacted] Nesrine



## Equipe 4 : Rachaka.dz

Porteur de projet [redacted] Meriem

### Accompagnateurs :

- Yasmine [redacted]
- [redacted] Mina
-

Des Administrations Conseils (AC) ont été désigné pour chaque équipe :

- [REDACTED] Mourad : AC de l'équipe *ISOLIVE*
- MOHAMED Yacine : AC de l'équipe *HOURIYATI*
- [REDACTED] Radia : AC de l'équipe *NELLA*
- [REDACTED] Ali : AC de l'équipe *RACHAKA.DZ*

## II- Liste des intervenants et leurs modules :

Enseignant	Profil	Intitulé du cours
Mme DEMMOUCHE Nedjoud	Gestionnaire FIE HEC	Remise des résumés de projets
M. [REDACTED] Hassen	Enseignant à HEC Alger	- Etudes de marché - Recherche d'information - Gestion d'équipe
M. [REDACTED] Hichem	Enseignant à HEC Alger	Intelligence économique
M. [REDACTED] Cherif	Enseignant à HEC Alger	Géo économie
M. [REDACTED] Yves	Représentant de FIE Fr	Prise de décision (jeu BYS) à ENSV
M. [REDACTED] Mohamed	Chef de service à la BADR Banque et enseignant à INSIM Blida	- Plan de financement - Financement d'entreprise - Comment lire un bilan ?
M. [REDACTED] Imène	Enseignante à HEC Alger	- La négociation - Parties prenantes - Esprit entrepreneurial
M. [REDACTED] Samy	Enseignant à INSIM Blida	Analyse financière
Mlle [REDACTED] Nawel	Enseignante à HEC Alger	Marketing de l'innovation
M. MOHAMED Yacine	Directeur de boîte de communication Bleucorp	- Recrutement et rédaction de CV - Communication - Stratégie d'entreprise - Choix stratégique - Gestion de stress
M. [REDACTED] Djafar	Chef de département technique à NFATAL GPL	- Management de projet - Pilotage de projet

**III- Liste des membres de jurys des RAP :**

Membre	Profil
M. [REDACTED] Radia	Administrateur Conseil de l'équipe "NELIA"
M. [REDACTED] Ibtissem	Cadre à la BADR Chéraga
M. [REDACTED] Mounir	Informaticien à HP
M. [REDACTED] Mourad	Administrateur Conseil de l'équipe "ISOLIVE"
M. [REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
M. [REDACTED] Samy	Assistant de direction au PAP'S
M. [REDACTED] Ali	Administrateur Conseil de l'équipe "RACHAKA.DZ"
M. [REDACTED] Hassen	Enseignant à HEC Alger
M. [REDACTED] Faouzi	Enseignante à HEC Alger
M. [REDACTED] Sofiane	Commercial à LG Tizi Ouzou
M. [REDACTED] Djaffar	Chef de département technique à NAFTAL GPL
M. [REDACTED] Tarek	Informaticien à la BADR Charaga
M. MOHAMED Yacine	Administrateur Conseil de l'équipe "HOURIYATI"

**IV- Liste des membres de jury pour la soutenance finale :**

Membre	Statut
Mme [REDACTED] Radia	Administrateur Conseil de l'équipe "NELIA"
M. [REDACTED] Faouzi	Enseignant à HEC Alger
M. [REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
Mlle [REDACTED] Ibtissem	Cadre à la BADR Chéraga
M. [REDACTED] Ali	Administrateur Conseil de l'équipe "RACHAKA.DZ"
M. [REDACTED] Hassen	Enseignant à HEC Alger
M. [REDACTED] Djaffar	Chef de département technique à NAFTAL GPL
M. [REDACTED] Abdelmadjid	Enseignant à HEC Alger
M. [REDACTED] Tarek	Informaticien à la BADR Charaga
M. [REDACTED] Mounir	Informaticien à HP

Après le passage de tous les groupes FIE HEC et après délibération du jury, ce dernier a désigné la :

- 1<sup>re</sup> place : l'équipe projet " ISOLIVE" avec une note de 7.68/10
- 2<sup>de</sup> place : l'équipe projet " HOURIYATI" avec une note de 7.36/10
- 3<sup>de</sup> place : l'équipe projet " NELIA" avec une note de 6.98/10
- 4<sup>de</sup> place : l'équipe projet " RACHAKA.DZ" avec une note de 5.90/10

**V- Evaluation individuelle des membres de l'équipe de chaque projet :**

<b>Projet 1 : ISOLIVE</b>	<b>Assiduité (25%)</b>	<b>Mémo (25%)</b>	<b>Projet (50%)</b>	<b>Total (100%)</b>
<b>Mansour</b>	04.50/5	04.50/5	07.68/10	16.68/20
<b>Thiziri</b>	04.00/5	04.50/5	07.68/10	16.18/20
<b>Nassima</b>	04.00/5	04.50/5	07.68/10	16.18/20
<b>Souad</b>	03.00/5	04.50/5	07.68/10	15.18/20
<b>Meriem</b>	04.00/5	04.50/5	07.68/10	16.18/20

<b>Projet 2 : HOURIYATI</b>	<b>Assiduité (25%)</b>	<b>Mémo (25%)</b>	<b>Projet (50%)</b>	<b>Total (100%)</b>
<b>Ahmed</b>	04.00/5	04.00/5	07.36/10	15.36/20
<b>Kacia</b>	04.00/5	04.00/5	07.36/10	15.36/20
<b>Maya</b>	04.00/5	04.00/5	07.36/10	15.36/20
<b>Oualid</b>	03.00/5	04.00/5	07.36/10	14.36/20
<b>A/Khaled</b>	03.00/5	04.00/5	07.36/10	14.36/20

<b>Projet 3 : NELIA</b>	<b>Assiduité (25%)</b>	<b>Mémo (25%)</b>	<b>Projet (50%)</b>	<b>Total (100%)</b>
<b>Narimane</b>	04.50/5	04.50/5	06.98/10	16.00/20
<b>Said</b>	04.00/5	04.50/5	06.98/10	15.50/20
<b>Brahim</b>	04.00/5	04.50/5	06.98/10	15.50/20
<b>Meriem</b>	04.00/5	04.50/5	06.98/10	16.00/20
<b>Nesrine</b>	04.00/5	04.50/5	06.98/10	16.00/20

<b>Projet 3 : RACHAKA</b>	<b>Assiduité (25%)</b>	<b>Mémo (25%)</b>	<b>Projet (50%)</b>	<b>Total (100%)</b>
<b>Meriem</b>	03.00/5	02.50/5	05.90/10	11.50/20
<b>Amina</b>	03.00/5	02.50/5	05.90/10	11.50/20
<b>Célia</b>	03.00/5	02.50/5	00.00/10	05.50/20
<b>Malha</b>	03.50/5	02.50/5	05.90/10	12.00/20

#### IV- La synthèse générale :

Dans le cadre de partenariat avec INSA Lyon, une formation Innovation Entreprendre" FIE s'est tenue au sein des locaux de HEC Alger allant du mois de Février à juin 2015.

L'objectif de l'équipe d'étudiants est de tester la faisabilité et la viabilité tant technologique qu'économique de l'idée initiale dans la perspective d'un projet d'entreprise. Cette mise en situation réelle permet aux étudiants d'acquérir en équipe une véritable expérience entrepreneuriale tout en accélérant leur formation d'ingénieur : ils gagnent ainsi 05 mois d'expérience professionnelle

Le groupe été composé de 20 participants représentant tous l'école des hautes études commerciales: EHEC. La formation s'est tenue dans les locaux de HEC Koléa.

La FIE HEC s'appuie sur des points forts:

- Une démarche de **maturation** en profondeur qui concerne autant les étudiants que les idées technologiques
- Un **fort accompagnement** qui donne une impulsion continue au projet
- Un **appui technologique**, tant sur les phases amont (émergence, prototypage) que sur les phases proches de la commercialisation (industrialisation)

Cette formation s'est terminée avec la remise des attestations aux participants tout en insistant sur la création de ce projet avec comme principal slogan :

***"Etudiant aujourd'hui, entrepreneur demain"***





Nous contacter :

Ecole des Haute Etudes Commerciales HEC Koléa

E-mail : [dginc@wissal.dz](mailto:dginc@wissal.dz) Fax : 024.37.00.37 Tél. : 024.38.00.37

-Responsable FIE HEC : Mlle DEMMOUCHE Nadjoua

[demmouchenedjoua@yahoo.fr](mailto:demmouchenedjoua@yahoo.fr)



**"FAMILLE FIE HEC 2015"**



## BILAN DE LA **FIE** HEC

### ***FILIERE INNOVATION ENTREPRENDRE***

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*Mars à Juin 2016 à HEC Alger*

***Mme Nedjoud DEMMOUCHE MOUNSI***

Maitre de conférences à HEC Alger (ex INC)

Responsable FIE HEC Alger

Chef de département Marketing

Chef d'équipe « Marketing et territoire »-laboratoire de recherche MARKETIC

[n.demmouche@hec.dz](mailto:n.demmouche@hec.dz)

## **PLAN DE TRAVAIL**

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### **Introduction :**

Traditionnellement, HEC Alger dispense un savoir général et théorique qui ne permet pas nécessairement la création immédiate de richesse. Cependant, de par la nouvelle conjoncture économique et sociale, sa mission ne doit plus être restreinte à l'enseignement et la recherche mais plutôt à la sélection, l'accompagnement et l'évaluation des projets entrepreneuriaux.

De ce fait, HEC (et l'université en général) d'aujourd'hui est interpellée pour devenir un acteur clé du développement en produisant un savoir utile et faire émerger un esprit entrepreneurial. Cet esprit d'entreprise se réfère à l'aptitude d'un individu de concrétiser ses idées par des actes et de se projeter tout en anticipant les risques. L'importance du rôle de l'enseignement dans l'encouragement d'attitudes et de comportements plus entrepreneuriaux est donc de plus en plus reconnue.

### **Présentation de la FIE :**

La FIE (Formation Innovation Entreprendre) est une formation des étudiants à entreprendre durant leur cursus pédagogique qui s'appuie sur des projets vivants permettant de faire appréhender et assumer les risques propres à l'entreprise. Elle joue le rôle de pré-incubateur pour les élèves en dernière année dont le projet professionnel est de créer leur entreprise ou activité.

La Formation Innovation Entreprendre est centrée sur le potentiel, l'envie d'un individu étudiant d'inscrire un projet entrepreneurial à un moment de son parcours professionnel pas forcément en sortie d'école, et uniquement comme créateur d'entreprise mais aussi comme intra preneur ou repreneur futur.

C'est un révélateur de potentiel de l'individu et pour ceux qui ont un projet pour immédiat, d'opportunité d'affaires. La FIE est aussi un lieu de rencontre entre des profils ouverts à des opportunités professionnelles et des créateurs en herbe pouvant déboucher sur des constitutions d'équipes dès les prémices du projet.

Durant le mois de Mars 2016, les fiches de candidature ont été récupérées auprès des étudiants de 3<sup>e</sup> années master intéressés par la FIE que ce soit déposés au bureau 55 ou bien envoyées par mail aux adresses des responsables FIE HEC (Ci-joint des exemples de copies des fiches d'inscription).

Le délai (12/03/2016) a été respecté par tout les étudiants intéressés par la FIE.

Aussi, des CV et des lettres de motivation ont été établis par les étudiants qui ont déposés leur affiche afin de désigner le profil de chaque étudiant.

Ainsi, les idées recueillies ont été soumises à un jury composé d'enseignants de HEC ainsi que des professionnels dont la liste est ci-jointe :

Membre	Statut
M. [REDACTED] Amel	Coordinatrice FIE HEC.
Mme [REDACTED] Nawel	Enseignante à HEC Alger
M. [REDACTED] Anis	Responsable des relations extérieures HEC Alger.
[REDACTED] Mourad	Responsable clientèle à la BADR Tipaza
[REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
M. [REDACTED] Nazim	Entrepreneur et gérant d'entreprise
M. [REDACTED] Hassen	Enseignante à HEC Alger
[REDACTED] Abdelhakim	Entrepreneur et gérant d'entreprise

La séance a été ouverte par un mot De la responsable FIE HEC, Mme DEMMOUCHE MOUNSI Nedjoua qui a souhaitait la bienvenue à tous les membres de jury et les a remerciait d'avoir pris de leur temps afin d'effectuer cette sélection.

Les étudiants, qui avaient déjà préparé les idées de leurs projets sont passés à tour de rôle afin d'expliquer aux membres du jury leurs propositions de valeur. Les projets présentés sont nombre de 07.

Des grilles d'évaluation préparées par Mm [REDACTED] Amel la coordinatrice de la FIE HEC dont ci-joint une copie ont été distribuées à chaque membre de jury et chaque grille est destinée à chaque groupe qui passe pour exposer.

La grille en question a permis d'établir une notation comme suit :

- Chaque critère été noté sur 20
- L'ensemble des critères retenus sont noté sur 100

Ainsi la note finale attribuée au projet regroupe toutes les évaluations des membres de jury et diviser sur leur nombre (05).

Aussi, et pour sélectionner les accompagnateurs, des tests psychotechniques ont été réalisés par les membres du jury afin de choisir les étudiants qui ont un esprit entrepreneurial et qui veulent adhérer à la FIE.



#### F. I. E : Filière Ingénieur Entreprendre

Ainsi la note finale attribuée au projet regroupe toutes les évaluations des membres de jury et diviser sur leur nombre (05) ce qui a donné les notes aux projets suivants :

Porteur de Projet	Jury 1	Jury 2	Jury 3	Jury 4	Jury 5	Moyenne	Classe
Amir Amina	22	25.5	33	53.5	46	36	04
Hind	24	34	26	40	38	32.4	07
Imène	56	32	50	60.5	61	51.9	03
Kamel	58	62	59	67	57	60.6	02
Sarah	60	49	71	78	72	66	01
Lilia	20	43	23	50	36	34.4	06
Imène	20	29	28	47	51	35	05

Des Administrations Conseils (AC) ont été désignés pour chaque équipe :

- Zakia : AC de l'équipe 1
- Mohamed Amine : AC de l'équipe 2
- Soumaya : AC de l'équipe 3.

En date du 20 février 2016, un marathon de l'innovation a été organisé à ENSA (Ecole Nationale Supérieure d'Agronomie). Ce dernier a été animé par la responsable FIE HEC, Mme DEMMOUCHE MOUNSI Nedjoua. L'objectif été de créer en 600 minutes chrono une start-up en réalisant son Business Plan. Toutes les écoles qui ont signé le consortium ont participé à ce marathon qui a duré jusqu'à 20h00.

## I- Liste des équipes projets :



### Equipe 1 : ALGEREELANCER

Porteur de projet [REDACTED] Imène

#### Accompagnateurs :

[REDACTED] Yasmine

[REDACTED] Ilhem

[REDACTED] Rania

Résumé : Algérieelancer est un site web qui regroupe deux bases de données. Une des entreprises et l'autre des Freelancers et ceci afin de donner plus de visibilité aux Freelancers.



### Equipe 2 : GREEN CORP

Porteur de projet [REDACTED] Sarah

#### Accompagnateurs :

[REDACTED] Sabrina

[REDACTED] Mehdi

[REDACTED] Hind

[REDACTED] Manel

[REDACTED] Zakaria

Résumé : Green Corp propose une solution complète pour répondre aux problèmes liés à la quantité importante de déchets non recyclés.



### Equipe 3 : 3ALAMNI

Porteur de projet [REDACTED] Kamel

#### Accompagnateurs :

[REDACTED] Lilia

[REDACTED] Esma

[REDACTED] Amel

Résumé : c'est un site de e-learning qui propose des opportunités d'apprentissage et de formation à distance pour les différents domaines de la recherche

## II- Liste des intervenants et les modules administrés :

Enseignant	Profil	Intitulé du cours
Mn [REDACTED] Nawel	Enseignante à HEC Alger	Remise des résumés de projets
I [REDACTED] Hervé	Représentant de FIE Fr	Pitch avec les groupes à ENSTP
M [REDACTED] Hichem	Enseignant à HEC Alger	Intelligence économique
M [REDACTED] Omar	Avocat à la cours d'Alger	Droit de la propriété intellectuelle
[REDACTED] Yves	Représentant de FIE Fr	Prise de décision (jeu BY5) à ESI
I [REDACTED] Mohamed	Chef de service à la BADR Banque et enseignant à INSIM Blida	- Plan de financement - Financement d'entreprise - Comment lire un bilan?
M Hervé [REDACTED]	Représentant de FIE Fr	Marketing de l'innovation
M.MOHAMED Yacine	Directeur de boîte de communication Bleucorp	Recrutement et rédaction de CV

## III-Liste des membres de jurys des RAP :

Membre	Profil
[REDACTED] Ibtissel	Directrice à la BADR Chéraga
M [REDACTED] Mounir	Informaticien à Microsoft
I [REDACTED] Mourad	Administrateur Conseil de l'équipe "Créative Box"
[REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
M [REDACTED] Amine	Responsable de projet à la Sonatrach
[REDACTED] Ali	Directeur de INSIM Blida
I [REDACTED] Soumaya	Enseignante et chercheur à HEC Alger
[REDACTED] Mohamed Amine	Enseignante et chercheur à HEC Alger
M [REDACTED] Hocine	Enseignante et chercheur à HEC Alger
M [REDACTED] Djaafar	Responsable de projets à NAFTAL
[REDACTED] I Omar	Avocat à la cours d'Alger

## IV-Liste des membres de jury pour la soutenance finale :

Membre	Statut
I [REDACTED] Anis	Responsable des relations extérieures à HEC Alger
I [REDACTED] Faouzi	Directeur des études à HEC Alger
M. MOHAMED Yacine	Entrepreneur et gérant de BLUCORP
M [REDACTED] Mohamed	Responsable clientèle à la BADR Chéraga
I [REDACTED] Hocine	Enseignant à HEC Alger
I [REDACTED] Ali	Directeur de INSIM Blida
I [REDACTED] Soumaya	Enseignant à HEC Alger

Après le passage de tous les groupes FIE HEC et après délibération du jury, ce dernier a désigné la :

- 1<sup>er</sup> place : l'équipe projet " GREEN CORP" avec une note de 6.75/10
- 2<sup>ème</sup> place : l'équipe projet " ALGEREELANCER" avec une note de 6.20/10
- 3<sup>ème</sup> place : l'équipe projet " 3ALAMNI" avec une note de 5.87/10

#### V- Evaluation individuelle des membres de l'équipe de chaque projet :

##### Projet 1 : GREEN CORP

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
██████████ Sarah	03.50/5	04.50/5	06.75/10	14.75/20
██████████ Faiza	03.75/5	04.50/5	06.75/10	15.00/20
██████████ Mehdi	03.75/5	04.50/5	06.75/10	15.00/20
██████████ Sabrina	03.00/5	04.50/5	06.75/10	14.25/20
██████████ Zakaria	03.50/5	04.50/5	06.75/10	14.75/20
██████████ Hind	03.00/5	04.50/5	06.75/10	14.25/20

##### Projet 2 : ALGEREELANCER

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
██████████ Im2ne	03.50/5	02.00/5	06.20/10	11.37/20
██████████ Yasmine	03.50/5	02.00/5	06.20/10	11.37/20
██████████ Rania	02.50/5	02.00/5	06.20/10	10.37/20
██████████ Ilhem	02.50/5	02.00/5	06.20/10	10.37/20

##### Projet 3 : GOLDEN FRITE

Membre de l'équipe	Assiduité (25%)	Mémo (25%)	Projet (50%)	Total (100%)
██████████ Kamel	02.75/5	02.75/5	05.87/10	11.70/20
██████████ Amel	02.50/5	02.75/5	05.87/10	11.45/20
██████████ Esma	02.50/5	02.75/5	05.87/10	11.45/20
██████████ Lilia	03.00/5	02.75/5	05.87/10	11.95/20

#### IV- La synthèse générale :

Dans le cadre de partenariat avec INSA Lyon, une formation Innovation Entreprendre" FIE s'est tenue au sein de la maison de l'entrepreneuriat de HEC Alger allant du mois de Mars à juin 2016.

L'objectif de l'équipe d'étudiants est de tester la faisabilité et la viabilité tant technologique qu'économique de l'idée initiale dans la perspective d'un projet d'entreprise. Cette mise en situation réelle permet aux étudiants d'acquérir en équipe une véritable expérience entrepreneuriale tout en accélérant leur formation d'ingénieur : ils gagnent ainsi 04 mois d'expérience professionnelle

Le groupe été composé de 14 participants représentant tous l'école des hautes études commerciales EHEC. La formation s'est tenue dans les locaux de la maison de l'entrepreneuriat de HEC Alger.

La FIE HEC s'appuie sur des points forts:

- Une démarche de maturation en profondeur qui concerne autant les étudiants que les idées technologiques
- Un fort accompagnement qui donne une impulsion continue au projet
- Un appui technologique, tant sur les phases amont (émergence, prototypage) que sur les phases proches de la commercialisation (industrialisation)

Cette formation s'est terminée avec la remise des attestations aux participants tout en insistant sur la création de leurs projets avec comme principal slogan :

***"Etudiant aujourd'hui, entrepreneur demain"***

Nous contacter :

Ecole des Haute Etudes Commerciales HEC Alger

E-mail : [dginc@wissal.dz](mailto:dginc@wissal.dz) Fax : 021.91.54.51 Tél. : 021.91.54.51

-Responsable FIE HEC : Mme DEMMOUCHE MOUNSI Nadjoua

[n.demmouche@hec.dz](mailto:n.demmouche@hec.dz)



**"FAMILLE FIE HEC 2016"**



## **ANNEXES**

- I- Fiche de candidature FIE HEC 2016
- II- Affiche FIE HEC 2016
- III- Conditions d'accès à la FIE HEC
- IV- Règlement intérieur de la FIE dz
- V- Grille d'évaluation

## **ANNEXE I**

### Formation Innovation Entreprendre



#### FICHE DE CANDIDATURE (2015/2016)

NOM : .....

Prénoms : .....

Email : .....

Option choisie en 2<sup>ème</sup> Année: .....

Je sou mets ma candidature pour le lancement d'un projet comme Chef de Projet ou Membre d'un Groupe (Équipier) initiateur d'une création d'entreprise ou création d'activité.

- *Si vous avez un projet personnel ou un projet d'activité pour une entreprise, décrivez en quelques lignes le projet (dans l'encadré ci-dessous)*

.....
.....
.....
.....
.....

- *Enumérer en quelques mots les raisons qui vous motivent à opter pour cette formation.*

--

## **ANNEXE I**

### Formation Innovation Entreprendre



#### FICHE DE CANDIDATURE (2015/2016)

NOM : .....

Prénoms : .....

Email : .....

Option choisie en 2<sup>ème</sup> Année: .....

Je sou mets ma candidature pour le lancement d'un projet comme Chef de Projet ou Membre d'un Groupe (Équipier) initiateur d'une création d'entreprise ou création d'activité.

- *Si vous avez un projet personnel ou un projet d'activité pour une entreprise, décrivez en quelques lignes le projet (dans l'encadré ci-dessous)*

.....
.....
.....
.....
.....

- *Enumérer en quelques mots les raisons qui vous motivent à opter pour cette formation.*

--

## **ANNEXE II**



### **FILIERE INNOVATION ENTREPRENDRE**



#### **MARATHON DE L'IMPOSSIBLE**

Organisé par le Club Des Distributeurs CDD HEC En collaboration avec la cellule **FIE** HEC

Sous le slogan

***"ETUDIANT AUJOURDHUI, ENTREPRENEUR DEMAIN"***

***LE 21 AVRIL 2016 A 08H30 A LA SALLE 38***

Contactez :

Mlle Siaci Manel (Présidente du CDD) [siaci.faizamanel@gmail.com](mailto:siaci.faizamanel@gmail.com)

Mme DEMMOUCHE MOUNSI Nedjoud [n.demmouche@hec.de](mailto:n.demmouche@hec.de)

## **ANNEXE III**

### **I- PRESENTATION DE LA FIE :**

La FIE (Formation Innovation Entreprendre) est une formation des étudiants à entreprendre durant leur cursus pédagogique qui s'appuie sur des projets vivants permettant de faire appréhender et assumer les risques à propos à l'entreprise. Elle joue le rôle de pré-incubateur pour les élèves en dernière année dont le projet professionnel est de créer leur entreprise ou activité.

La Formation Innovation Entreprendre est centrée sur le potentiel, l'envie d'un individu étudiant d'inscrire un projet entrepreneurial à un moment de son parcours professionnel pas forcément en sortie d'école, et uniquement comme créateur d'entreprise mais aussi comme intra preneur ou repreneur futur.

C'est un révélateur de potentiel de l'individu et pour ceux qui ont un projet pour immédiat, d'opportunité d'affaires. La FIE est aussi un lieu de rencontre entre des profils ouverts à des opportunités professionnelles et des créateurs en herbe pouvant déboucher sur des constitutions d'équipes dès les prémices du projet.

### **III – ACCES A LA FIE HEC 2016**

- Etre un étudiant en dernière année (5<sup>e</sup> année toute spécialité confondue)
- Avoir une idée innovante
- Remplir et déposer la fiche d'inscription auprès des gestionnaires FIE HEC (Bureau n°55)
- Validation du projet par un jury

### **II - LISTE DES MODULES FIE HEC 2016**

Modules	Durée
Innovation et stratégie	36H
Pilotage de projet	22H
Choix et pilotage financier	24H
Accès au marché	36H
Comportement entrepreneurial	30H
Environnement juridique	24H

## **ANNEXE III**

### **REGLEMENT INTERIEUR DE LA FIE ALGERIE**

**Article 1 :** Les conditions d'accès à la FIE sont fixées par le protocole d'accord cadre de collaboration entre les écoles supérieures Algériennes.

**Article 2 :** Tout étudiant ne peut suivre la formation FIE que s'il est inscrit en 5<sup>ème</sup> année.

**Article 3 :** L'étudiant doit cumuler un ensemble de 200H de cours et de séminaires. Une absence non justifiée à un séminaire obligatoire est sanctionnée.

**Article 4 :** Un étudiant est considéré en situation d'abandon s'il s'absente durant cinq (05) jours consécutifs sans fournir aucun justificatif.

**Article 5 :** Les étudiants peuvent s'inscrire à la FIE avec ou sans projet. Les étudiants retenus n'ayant pas de projet seront automatiquement affectés en tant qu'équipiers à des porteurs de projets.

**Article 6 :** La sélection entraînera la constitution d'équipes constituées de 3 à 4 personnes. Tout autre nombre de personnes doit être soumis à une commission qui décidera de l'acceptation ou du rejet du nombre d'étudiants.

**Article 7 :** Si la commission de sélection décide de ne pas retenir un projet à cause du seuil de nombre de projets acceptés, les porteurs de ce projet s'engageront à devenir des équipiers avec d'autres porteurs durant la formation FIE.

**Article 8 :** Idéalement, le porteur de projet est le chef de projet. Mais dans un contexte quelconque, l'équipe d'un projet peut désigner un équipier autre que le porteur à assurer le rôle de chef de projet.

**Article 9 :** Durant toute la période du projet FIE, l'équipe projet doit embrasser les valeurs FIE de courage, de sincérité, d'altruisme et d'honnêteté.

**Article 10 :** Le porteur et le chef de projet doivent veiller à ce que l'équipe surmonte les problèmes de la meilleure manière possible. Les deux doivent aussi faire le maximum pour résoudre les conflits internes à l'équipe de la meilleure façon possible.

**Article 11 :** Si le porteur et le chef de projet arrivent à un point bloquant dû à un conflit interne, ils doivent à ce moment là discuter du problème avec l'administration FIE.



- Article 12 :** Le rôle du porteur de projet est d'assurer que son projet converge vers la réalisation. Le rôle du chef de projet est d'en assurer la gestion en procédant au découpage du projet en phases et tâches et en affectant les tâches aux équipiers.
- Article 13 :** les équipiers s'engagent à assurer les tâches affectées par le chef de projet dans la mesure de leur faisabilité.
- Article 14 :** Durant la formation l'étudiant est soumis à des contrôles de connaissances qui peuvent prendre des formes variées : épreuves écrites de durées et formes différentes, travaux pratiques, études de cas, projets, exposés, synthèses documentaires.
- Article 15 :** A la fin de la formation l'étudiant est tenu de présenter un mémoire qui remplacera son PFE s'il le souhaite suivi d'une soutenance et d'une composition de jury différente de celle du PFE.
- Article 16 :** Le suivi, l'encadrement et l'évaluation du PFE sera assuré par une commission de suivi désignée à cet effet et qui peut être élargie aux personnes de différents secteurs d'activités.
- Article 17 :** Les travaux finalisés seront soumis à un jury de délibération, composé d'enseignants et qui peut être élargi à des membres professionnels du domaine.
- Article 18 :** La FIE étant un programme pédagogique en fin de cursus, délivre à cet effet une attestation qui stipule que l'étudiant a suivi la formation dispensée.
- Article 19 :** Le projet est une propriété naturelle du porteur de projet. Suite au parcours de la FIE, le porteur est libre de continuer le projet avec la même équipe ou une autre ou abandonner le projet. Les équipiers sont libres de continuer sur le projet, de créer leur propre start-up ou suivre une autre voie.
- Article 20 :** La FIE n'est nullement un concours entre projets. Chaque projet a ses caractéristiques intrinsèques.
- Article 21 :** L'évaluation de la FIE ne se fait pas uniquement sur la base de projets, elle se fait surtout sur le profil des individus.
- Article 22 :** La cellule de la FIE s'engage à assurer la confidentialité autour des projets. les professeurs, les coaches, les membres de la direction et les membres des commissions d'évaluation s'engageront à signer des engagements de confidentialité.
- Article 23 :** Les équipiers doivent signer un engagement de confidentialité sur le projet auquel ils participent ainsi que sur l'ensemble de projets FIE.
- Article 24 :** Les soutenances FIE se feront à huis clos. Les porteurs de projets et les équipiers peuvent inviter uniquement les parents ou d'autres porteurs / équipiers.
- Article 25 :** Les résultats des commissions ne se sont pas divulgués en public; Ils sont proclamés en privé en présence du porteur et de l'équipe uniquement.

## **ANNEXE IV**

### **Grille d'évaluation des projets**

Nom et prénom de l'évaluateur : .....
Employeur / entreprise:.....
Fonction : .....

Intitulé du projet .....

Nom et prénom du porteur du projet .....

Nom et prénom des membres de l'équipe

- .....
- .....
- .....

### **Les critères d'évaluation**

- Chaque axe est soumis à un ensemble d'appréciations de critères présentés dans les tableaux ci-dessous.
- La somme de ces appréciations ne doit pas dépasser 20 pts par axe
- Chaque critère est noté de 1 à 5 ( 1) Très insatisfaisant à (5) très satisfaisant)

**1<sup>er</sup> axe : Profil du porteur de projet/l'équipe**

- Le degré de motivation du porteur de projet	...../5
- La maîtrise du métier entourant le projet	...../5
- L'identification des compétences humaines requises au développement du projet	...../5
- Le profil manager du porteur de projet	...../5
<b>Total</b>	<b>...../20</b>

**2<sup>ème</sup> axe : Analyse de marché**

- Un besoin a clairement été identifié.	...../5
- Le public cible est clairement défini	...../5
- L'environnement répond favorablement à ce type de projet	...../5
- La possibilité de faire évoluer le projet dans le futur	...../5
<b>Total</b>	<b>...../20</b>

**3<sup>ème</sup> axe : L'innovation**

- L'originalité de l'idée	...../5
- Le projet donne naissance à une nouveauté, à un changement dans le milieu.	...../5
- Les caractéristiques distinctives et innovatrices de l'offre par rapport au marché	...../5
- L'originalité de l'approche commerciale	...../5
<b>Total</b>	<b>...../20</b>

**4<sup>ème</sup> axe : Stratégie commerciale**

- Potentialité commerciale de l'offre	...../5
- L'identification de l'avantage distinctif ou concurrentiel de l'offre	...../5
- La cohérence du plan d'actions commerciales (prix, communication. Le mode de vente)	...../5
- Possibilités de faire évoluer commercialement l'offre	...../5
<b>Total</b>	<b>...../20</b>

**5<sup>ème</sup> axe : Risque financier**

- Le réalisme des prévisions financières	...../5
- Le mode de financement	...../5
- Les ressources financière et leurs répartitions	...../5
- Projection de la rentabilité du projet	...../5
<b>Total</b>	<b>...../20</b>

**Appréciation Général du projet**

.....

.....

.....

.....

<b>Total des notes</b>	<b>/100</b>
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**Appendix 3: Coaching and project review sessions:**



***Appendix 4: Questionnaires used for data collection:***

	Searching phase	Planning phase	Marshalling phase	Implementing phase
What is its maturity stage ( Lumpkin, Hills and Shrader (2004)) of your venture idea? (Year 2015)	11	3	0	0
Expected mastered competencies (Year 2015)	Project management 5	Finance management 1	Creativity 3	Leadership 1
Mid curriculum mastered skills (Year 2015)	2	1	1	0
Mid curriculum unexpected learned competencies not included as module initially in the curriculum (Year 2015)	0	0	0	0
Practiced skills still useful in your daily life (After 2 Years)	3	1	1	0
Top 5 Practiced skills that contributed to launch venture	2	0	0	0
Mid curriculum mastered skills (Year 2015)	Teamwork 2	Strategic decision making 1	Financial planning 1	Business modelling 5
Expected difficulties (Year 2015)	Work load 4	Mismatch of learning materials and teachers 1		
New Skills expected not targeted by FIE	Problem solving 1			
Major unexpected result mid curriculum	Perform public presentations 4	Get practical advices from expirimented entrepreneurs 1		
Practices of the program that are still useful for you in your daily life	Practice of project reviews presentation 3	Group Work 1	Project documentation 1	
Major practice of the program that does not support venture creation	Theoretical seminars 3	Different deliverables documents and reports at different stages of the curriculum 1	Mentoring by non entrepreneurs 1	

	Searching phase	Planning phase	Marshalling phase	Implementing phase
What is its maturity stage ( Lumpkin, Hills and Shrader (2004)) of your venture idea? (Year 2015)	11	3	0	0
Expected mastered competencies (Year 2015)	Project management 5	Finance management 1	Creativity 3	Leadership 5
Mid curriculum mastered skills (Year 2015)	2	1	1	0
Mid curriculum unexpected learned competencies not included as module initially in the curriculum (Year 2015)	0	0	0	0
Practiced skills still useful in your daily life (After 2 Years)	3	1	1	0
Top 5 Practiced skills that contributed to launch venture	1	0	0	0
What did you learn from mentoring and entrepreneurs' experience sharing sessions?	1	0	0	2
Expected difficulties (Year 2015)	Work load 4	Mismatch of learning materials and teachers 1		
New Skills expected not targeted by FIE	Problem solving 1			
Major unexpected result mid curriculum	Perform public presentations 4	Get practical advices from expirimented entrepreneurs 1		
Practices of the program that are still useful for you in your daily life	Practice of project reviews presentation 3	Group Work 1	Project documentation 1	
	Theoretical seminars	Different deliverables documents and reports at different stages of the curriculum	Mentoring by non entrepreneurs	

	Questions	Students A14	Students B14	Students C14	Students D14	Students E14
2014	Beginning of the curriculum	What do you expect from this program?	Get a diploma in entrepreneurship field	Prepare myself to launch a venture after my graduation	Use this diploma to continue my studies abroad	I prefer to work on a project rather than academic memory
		What top 3 skills do you think you will master at the end of the program?	Project management, teamwork and finance management	Project management, creativity and problem solving	Project management, finance management and leadership	Project management, finance management and leadership
		What is the major difficulty do you think you will face during the program?	Over load of duty	Mismatch of learning materials and teachers because of students different objectives	Over load of duty	Over load of duty
		Did the program meet you expectations of the beginning so far? (1 Totally disagree to 5 Totally agree)	4	3	4	2
	Mid curriculum	What top 3 skills did you learn so far?	Team work, strategic decisions making and creativity	Team work, business modeling and strategic decisions making	Team work, strategic decisions making and financial planning	Team work, business modeling and strategic decisions making
		What is the major difficulty did you face so far?	Work on team having different objectives	Identify legal obstacles to launch my venture	Manage over load duty	Manage over load duty
		What is the major unexpected result did you get so far?	Perform public presentations	Get advices from experienced entrepreneurs	Perform a public presentation	Perform a public presentation
		Did you succeed in creating your venture?	No	Yes	No	No
	2 years after graduation	If yes, What are top 3 skills that contributed to this success?	None	Project management, Presentation and public speaking, TeamWork, Problem solving and idea market validation	None	None
		If yes, What is the major practice of the program did the most contribute to this success?	None	Practice of market experimentation	None	None
		If yes, What is the contribution of the teaching staff?	None	Provide theoretical framework	None	None
		What are practiced skills of the program that are still useful for you in your daily life?	project reviews presentation	project review presentations	Practice of ideation and creativity	Group work
		From Your Point of view, What is the major practice of the program that does not support venture creation?	Theoretical seminars	Mentoring by non entrepreneurs	Theoretical seminars	Different deliverables documents and reports at different stages of the curriculum
						Theoretical seminars

	Questions	Students A15	Students B15	Students C15	Students D15
2016	Beginning of the curriculum	What is its maturity stage of your venture idea?	Planning Phase	Searching Phase	Searching Phase
		Does you expectations of the program is more related to skills acquisition or venture project technical support?	Venture project technical support	Skills acquisition	Skills acquisition
		What skills do you think you will master at the end of the program?	Business and operations planning	Operational marketing	Business planning and self-confidence
		What is the major difficulty do you think you will face during the program?	Get in touch with experienced mentors in the technical field of our project	Work load in parallel with academic duties	Work load in parallel with academic duties
	Mid curriculum	Did the program meet you expectations of the beginning so far? (1 Totally disagree to 5 Totally agree)	3	2	2
		What top 3 skills did you learn so far?	Business plan elaboration, Teamwork and presentation and public speaking	Project management, Teamwork and presentation and public speaking	Project management, teamwork and business planning
		What is the major difficulty did you face so far?	Get in touch with concret potential investors	Stick to deadlines of deliverables especially project reviews reports	Work load in parallel with academic duties
		What is the major unexpected result did you get so far?	Realize the real great market potential of our project thanks to mentors feedback	Understand how much it is crucial to validate our project with the market place	Understand the importance of market access and tests
	2 years after graduation	Did you succeed in creating your venture?	Yes	No	No
		If yes, What are top 3 skills that contributed to this success?	Project management, business planning and market access validation	None	None
		If yes, What is the major practice of the program did the most contribute to this success?	Practice of market experimentation	None	None
		If yes, What is the contribution of the teaching staff?	Mentoring and experiences sharing by entrepreneurs	None	None
		What are practices of the program that are still useful for you in your daily life?	Practice of project review presentations	Practice of market experimentation	Practice of group work
		From Your Point of view, What is the major practice of the program that does not support venture creation?	Theoretical seminars	Different deliverables documents and reports at different stages of the curriculum	Theoretical seminars
		What did you learn from mentoring and entrepreneurs' experience sharing lectures?			



