

**Ecole Des Hautes Etudes Commerciales  
d'Alger**

**EHEC**

**Dissertation Submitted in Fulfilment  
of the Requirements for Master's Degree in Commercial Sciences  
Option: Management and Entrepreneurship**

**Academic Entrepreneurship: An Explanatory  
Study on the Determinants of Academics'  
Entrepreneurial Intentions  
CASE STUDY: EHEC-Alger**

**Submitted by:**

Mr. Salah Eddine DJOUAL

**Supervised by:**

Mrs Nesrine BOUCHA  
Professor at EHEC-Alger

**06<sup>th</sup> promotion**

**June 2019**



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# *Dedication*

*To My Dear Parents Who Have Always  
Supported Me*

## **Acknowledgements**

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## List of abbreviations

Abbreviation	Signification
AEI	Academic's Entrepreneurial intentions
ANSEJ	Agence nationale de soutien à l'emploi des jeunes
E.H.E.C	Ecole Des Hautes Etudes Commerciales
EA	Entrepreneurial Attitudes
EI	Entrepreneurial intentions
GDP	Gross domestic product
<i>GEM</i>	Global Entrepreneurship Monitor
MESRS	Ministry of Higher Education and Scientific Research
MIT	Massachusetts Institute of Technology
PCA	Principal Component Analysis
SE	Self-efficacy
SPSS	Statistical Package for the social sciences

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## **Abstract**

This study aims to explain the intention of the higher education teachers and researchers in commercial sciences to create a company valuing results or skills resulting from their research. More precisely, it identifies the determinants of intention and their weight in the explanation of intention. Explanatory model of the intention to create a company, based on intention models, is selected and tested on a sample of 53 academic teachers and researchers from the EHEC-Alger. The results obtained highlight the positive roles played by the professional and personal networks in promoting academics' interest in new business ventures. In addition, the findings emphasize on the significant role of entrepreneurial attitudes and self-efficacy. Finally, Analysis of the marginal effects of certain contextual variables, such as perceived support from university, and of their lower impact at a psychological level can produce interesting implications and insights, both for the academic world and for policy makers in this area.

**Keywords:** Academic entrepreneurship, Entrepreneurial intentions, Professional and personal networks, Academics, Entrepreneurial attitudes, Self-efficacy.

## Résumé

Cette étude vise à expliquer l'intention des enseignants de l'enseignement supérieur et des chercheurs universitaires en sciences commerciales de créer une entreprise, valorisant les résultats ou les compétences issus de leurs recherches. Plus précisément, elle identifie les déterminants de l'intention et leur poids dans l'explication de l'intention. Un modèle explicatif de l'intention de créer une entreprise, basé sur des modèles d'intention, est sélectionné et testé sur un échantillon de 53 enseignants et chercheurs universitaires de l'EHEC-Alger. Les résultats obtenus mettent en évidence le rôle positif joué par les réseaux professionnels et personnels dans la promotion de l'intérêt des universitaires pour de nouvelles entreprises. En outre, les résultats mettent l'accent sur le rôle important des attitudes entrepreneuriales et de l'auto-efficacité. Enfin, l'analyse des effets marginaux de certaines variables contextuelles, comme le soutien perçu de l'université, et de leur faible impact sur le plan psychologique peut produire des implications et des perspectives intéressantes, tant pour le monde universitaire que pour les décideurs dans ce domaine.

**Mots-clés :** Entrepreneuriat académique, Intentions entrepreneuriales, Réseaux professionnels et personnels, enseignants et chercheurs universitaires, Attitudes entrepreneuriales, Auto-efficacité.

## ملخص

تهدف هذه الدراسة الى شرح نية أساتذة التعليم العالي والباحثين في العلوم التجارية في إنشاء شركة من خلال النتائج أو المهارات الناتجة عن أبحاثهم. وبمزيد من الدقة ، هذه الدراسة تحدد عوامل تنمية روح المقاوالتية ووزنها في تفسير هذه النية. النموذج التفسيري لنية إنشاء شركة، استنادا إلى نماذج النية ، تم تطويره واختباره على عينه من 53 استاذ وباحث من مدرسة الدراسات العليا التجارية بالجزائر.

تبرز النتائج التي تم الحصول عليها الأدوار الإيجابية التي تؤديها الشبكات المهنية والشخصية في تعزيز اهتمام الأكاديميين بالمشاريع التجارية الجديدة ، بالإضافة إلى ذلك، تؤكد النتائج على الدور الهام للمواقف الريادية والفعالية الذاتية. وأخيرا ، تحليل الآثار الهامشية لبعض المتغيرات السياقية، مثل الدعم المتوقع من الجامعة، وتأثيرها الضئيل على المستوى النفسي يمكن ان يؤدي إلى اثار ورؤى مثيرة للاهتمام ، سواء بالنسبة للعالم الأكاديمي أو بالنسبة لواقعي السياسات في هذا المنطلق.

**الكلمات الرئيسية:** ريادة الاعمال الأكاديمية ، نوايا ريادة الاعمال ، الشبكات المهنية والشخصية ، مواقف ريادة الاعمال ، الكفاءة الذاتية.

**GENERAL  
INTRODUCTION**

Entrepreneurship has been an undeniable passion within the management science research community over the past two decades. It has multiple perspectives, adopted by economists, sociologists, psychologists, management scientists and behavioural scientists; hence, recently, a surprising phenomenon has begun to take place, mainly in the United States. This is called “academic entrepreneurship”. This generic term is used to indicate how academics are moving away from their primary mission of producing knowledge that is potentially useful to the community, by promoting the entrepreneurial action of its members<sup>1</sup>. Therefore, as the process of academic entrepreneurship becomes increasing professionalised and academics are explicitly encouraged to market their research knowledge entrepreneurial activities within Algerian universities have received heightened attention. Although, only a limited number of studies have addressed the phenomenon of technology transfer resulting from academic research and studies are still at an early stage and our knowledge about the determinant factors in this area remains very limited. Therefore, caution is needed; it cannot simply be assumed that general models of entrepreneurship also apply to the specific domain of academics’ activity in this field without actually testing such assumptions.

The purpose of our study is both empirical and theoretical. It consists of presenting the development of academic entrepreneurship in Algeria and studying in particular the entrepreneurial intention of academic teachers and researchers. Therefore, the main objective of our thesis is to describe, predict and understand, in a context of academic entrepreneurship, a major phase of the upstream entrepreneurial process which is the entrepreneurial intention. Hence, the latter, from a procedural perspective, predicts the entrepreneurial act likely to take place by academics. Thus, to handle this study in depth, this work aims to find an adequate model of the formation of entrepreneurial intentions and to empirically test the model to better understand drivers of academic spin-off companies. The expected results will make it possible to determine the factors that negatively or positively influence the academics' intentions in order to propose remedies to develop academic entrepreneurship in Algeria.

The present study aims to discuss a fundamental problematic of how academic teachers and researchers perceive academic entrepreneurship. Thus, this study aims to provide a better understanding of the determinants of entrepreneurial intentions among higher education

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<sup>1</sup> JAZIRI, (R) and PATUREL, (R): « L'intention entrepreneuriale de l'universitaire : vers un consensus conceptuel de l'“academic entrepreneurship” à l'acadépreneuriat », Actes du colloque international sur « l'entrepreneuriat à la recherche de l'intention : l'imagination au service de la gestion », ESC Bretagne Brest, 29-30 janvier 2009, p.01.

teachers and researchers, in other words, the study aims to answer the following question: “how to explain the academic's intentions to start a business or a spin-off”.

To address this issue, we have developed a research framework that links an examination of theoretical knowledge and field investigation. The analysis of the intention was approached by distinguishing, on one hand, the social factors in the view that these can be crucial to being able to access the resources needed to drive forward new ventures, on the other hand, we analyse economic and political variables (environmental conditions) and finally, we analyse psychological variables (attitudes and perceived self-efficacy) as specific proximal predictors of AEI.

The selected social variables are taken from the literature review and are two in number: (1) professional social networks represented by; previous professional experiences, exposure to prior entrepreneurial experiences, experience in professional forums. (2) Personal social networks highlighted by; perceived personal support and perceived role models.

The selected economic and political variables are also taken from the literature review: environmental conditions represented by; perceived support of university, perceived support of government and perceived support of industry.

The selected psychological variables are also taken from the literature review and are two in number: academic's attitudes and perceived self-efficacy.

In relation to our problem, we have put forward five hypotheses:

H I: academic's professional social networks are significantly related to EI.

H II: academic's personal social networks are significantly related to EI.

H III: the environmental conditions influence negatively academic's entrepreneurial intentions.

H IV: academic's entrepreneurial attitudes have a positive effect on EI.

H V: academic's self-efficacy has a positive effect on EI.

It should also be noted that each variable is the subject of sub-assumptions that will be studied as the investigation progresses.

The methodology followed in this study is based on two main processes of knowledge construction: exploration by descriptive methodology and testing by using the analytical methodology. Thus, the objective of the descriptive methodology is exploring a phenomenon

by making a clean slate of previous knowledge on the subject. This path has basically allowed us to discover new knowledge on the determinants favouring entrepreneurship according to the perception and commitment of Algerian academic researchers. In our study, we tried to select the adequate model of intentions.

For the analytical methodology, our study consists of testing hypotheses from the preliminary construction. It is quantitative in nature. Hypothesis verification must be based on extensive data collection, generally by means of a questionnaire and analysed by statistical processing. We preferred to use the questionnaire as an investigative tool, as it offers the possibility of standardization and comparability of the measurement.

The initial sample, selected, is composed of 71 academic teacher and researcher in EHEC-Alger. After having tested our questionnaire with 3 teachers, two ways were followed to administer it: the first is face-to face; the second is using the online survey.

The administration of the questionnaire face-to-face allows a direct answer to the questions asked. It also allows a better control of the sample's representativeness. The online survey seemed to us to be the best solution. It gives the respondent time to reflect and it represents a lower cost (in terms of time and financial means).

The final structure of the questionnaire was then articulated into four parts:

Part 01: relevant to academics' professional and personal social networks.

Part 02: About environmental conditions.

Part 03: psychological factors of attitude and self-efficacy.

Part 04: complementary information includes introductory questions related to gender, age, professional status, scientific field of the academics.

The questionnaire consists of 24 questions of several types; we've used closed questions in order to facilitate the respondent's work, the coding of answers and their analyses. We've mobilised dichotomous questions (*in this case the respondent's choice can be summarized in two possibilities -Yes or No-*) and questions in scale form. Most items were measured using Likert-scale, five-point scales (1 – “totally disagree” to 5 – “totally agree”).

The questionnaires were distributed to 11 teachers face-to-face in my presence; and 60 questionnaires were distributed by electronic mails. The survey was conducted in the first

three weeks on May; however the response rate was average depending on the teacher's and researcher's responses of their mails. In total we've collected 53 fully usable questionnaires.

The presentation of this study is divided into three chapters:

The first chapter discusses the main theories of academic entrepreneurship from their different disciplines. To this end, a reading of the foundations of the field of entrepreneurship will be carried out. In a second step, we will focus on the model of the "entrepreneurial university", and in a last step, we will work on delineating these concepts of academic entrepreneurship and specifically academic-entrepreneur as the main core of our study.

The second chapter discusses two main parts; the first, discusses the main theories of entrepreneurial intention from different disciplines. To this end, a reading of the foundations of the entrepreneurial intentions approach will be carried out. In the second part, we will select the adequate model of the intention to create a business adapted to our study context. To this end we will choose number of explanatory variables from previous models, to which we then add other variables that we think are interesting to be mobilised in the context of academic entrepreneurship.

The third chapter provides a better understanding through the exploratory study with academics researchers through the general description of the socio-demographic data of the questionnaire. Moreover, in this chapter, we will test the relationships formulated in our study hypotheses to determine, if they exist, the nature and significance of the determinants of academic's entrepreneurial intention. Finally, this work will allow us to discuss the results of this study in relation to the selected conceptual model.

**CHAPTER I:**  
**General**  
**Overview on**  
**Entrepreneurship**

## **Introduction**

Academic research in the field of entrepreneurship is making great progress, particularly in Anglo-Saxon and European countries. On the other hand, in Algeria the situation is totally different, and the field of entrepreneurship is not yet completely marginal. It is also vital to mention that over the past two decades, a phenomenon has begun to emerge, mainly in the United States. It is called “academic entrepreneurship”. This generic term is used to indicate how academics are moving away from their main mission of producing knowledge that is potentially useful to the community, by promoting their entrepreneurial action. Thus, university stakeholders, including academic researchers, are opting for a range of initiatives to facilitate the commercialization of their previously non-market knowledge.

On the light of these considerations, and in order to contextualize it in the theoretical construction, our presentation uses approaches and definitions of the field of entrepreneurship in general and academic entrepreneurship in particular.

This chapter therefore discusses the main theories of academic entrepreneurship from their different disciplines. To this end, and first of all, a reading of the foundations of the field of entrepreneurship will be carried out (section 1). In a second step, we will focus on highlighting the beginnings of an entrepreneurial paradigm in the university. Also, we focus on the model of the “entrepreneurial university”, and then we will work on delineating these concepts of academic entrepreneurship and specifically academic-entrepreneur as the main core of our study (section 2).

## **Section 1: Conceptual framework of entrepreneurship**

Entrepreneurship is now a topical issue: teachers, researchers, managers, business leaders, consultants, politicians, all are interested in it. Today, we have a better knowledge of the phenomenon. Although the importance of this later, there is no consensus on a theory of entrepreneurship, let alone a clear definition. The notion of entrepreneurship must be approached in detail with three-fold concerns in mind: definition, clarification and apprehension.

In the context of the ongoing research, we believe that it is essential to focus on the definitions and the importance of entrepreneurship in order to clarify our field of research. We will review the different paradigmatic foundations of this later. Secondly, we will highlight

the different approaches to reflect the multidimensionality, diversity and complexity of the entrepreneurial phenomenon. We will focus our intention on entrepreneurs as a key element of any business creation and finally, we will position the entrepreneurial mind-set within the entrepreneurial process.

### **1.1. Definition of Entrepreneurship**

Literature on different aspects of entrepreneurship shows that the word, entrepreneur, is derived from the French word *entreprendre*, which means ‘to do something’, also the word may be translated literally as ‘between taker’, or ‘go-between’, the verb meaning ‘to undertake’. This implies that it is action based – not something that we just think about or theorize about, but something that has meaning in what is actually done in practice. Although the literature recognizes the importance of entrepreneurs, it provides such a broad range of definitions that it becomes difficult to pin down what the term actually means.

For Lowe and Marriott there are both narrow and broad definitions of entrepreneurship<sup>1</sup>:

**1.1.1. Narrow definitions of entrepreneurship:** for some people, the word entrepreneur is defined quite narrowly, meaning the same as ‘capitalist employer’ or ‘business owner/manager’. Others see it as a phenomenon of small businesses rather than large ones, of the private sector rather than the public, social or not-for-profit sectors. Some see entrepreneurship in terms of business creation and development, and there are many textbooks on the subject that focus almost entirely on how ideas are generated, business plans written, resources acquired and business concepts brought to realization.

**1.1.2. Broader definitions:** other writers take a broader view, still focusing on organizations, but recognizing that people can be creative and innovative as employees as well as in a self-employed capacity. These people are labeled ‘intrapreneurs’, and organizations that wish to remain competitive in fast-moving or complex and competitive environments need to nurture such individuals and harness their creative capacity in order to achieve sustainable competitive advantage.

According to Lundstrom and Stevenson there are two streams of research when it comes to defining entrepreneurship:

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<sup>1</sup> LOWE, (Robin) and MARRIOTT, (Sue): *Enterprise: Entrepreneurship and Innovation*, Elsevier, 2006, pp. 37-38.

**1.1.3. Entrepreneurship in the management literature:** the first stream of research defines entrepreneurship more in terms of a managerial dynamic. Entrepreneurship is observed as something that entrepreneurs "do" or in relationship to aspects of an individual's entrepreneurial behaviour. The two authors provided several definitions in this stream: "*Reynolds et al. (1999) define it as any attempt at new business or new venture creation, such as self-employment, a new business organization or the expansion of an existing business by an individual, a team of individuals or an established business. Gartner and Carter (2003) define it as an organizational phenomenon and, more specifically, as an organizing process. Shane and Eckhardt (2003) define entrepreneurship as the discovery, evaluation and exploitation of future goods and services...*"<sup>1</sup>

**1.1.4. Entrepreneurship in economic literature:** the second stream of research defines entrepreneurship more in terms of an economic dynamic or a societal phenomenon: "*Morris (1996), for example, defines entrepreneurship as the relationship between entrepreneurs and their surroundings and the role government plays in creating the economic, political, legal, financial, and social structures that characterize a society (and the environment for entrepreneurs). Lowrey (2003) defines entrepreneurship as an economic system that consists of entrepreneurs, legal and institutional arrangements, and governments.*"<sup>2</sup>

On the variety of definitions and views of entrepreneurship, we may adopt the broader definition of entrepreneurship; it isn't just something that entrepreneurs "do", it is a social phenomenon that emerges within the context of a broader society and involves many actors, which is deeply confirmed by Bhargava's definition of entrepreneurship: "... *It is also the driving force for initiating business ideas and mobilizing human, financial and physical resources for establishing and expanding enterprises and creating jobs.*"<sup>3</sup>

## **1.2. The importance of entrepreneurship**

Entrepreneurship plays an influential role in the economic growth and standard of living of the country. In fact the importance of entrepreneurship pervades all sectors of the economy and all types of organizations, but industry and individual businesses, especially small businesses, are particularly the places where entrepreneurship is crucial for economic growth, productivity gains and job creation. For example Henry, Hill and Leitch state, "*It is now*

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<sup>1</sup> LUNDSTROM, (Anders) and STEVENSON, (Lois): *entrepreneurship policy: theory and practice*, kluwer academic publishers, 2005, p.55.

<sup>2</sup> Ibid., p.55.

<sup>3</sup> BHARGAVA, (S) : *Developmental Aspects of Entrepreneurship*, Response Books, First edition, 2007, p.22.

widely recognized that the promotion of entrepreneurship is not only necessary for a healthy economy but also critical for sustaining prosperity and creating new jobs.”<sup>1</sup>

Furthermore, the role of entrepreneurs in the economy has been growing in importance for many years, so they have become significant economic forces. Indeed, Entrepreneurs and their businesses can generate wealth and jobs, which can enable social and regional inequality to be reduced.

Westhead and Wright considers Entrepreneurs as a vital agents of innovative change whose actions lead to the creation of new firms. They can also transform existing firms to exploit economic and socially beneficial opportunities: “*In the popular media, entrepreneurs are often presented playing a key role in promoting economic development. Indeed, GEM studies have discovered a significant link between the rate of entrepreneurial activity in a country and growth in that country’s gross domestic product (GDP), although the link is not consistent across all countries.*”<sup>2</sup>

There are other reasons why entrepreneurship is important, these include that it can act as a vehicle for personal development or for solving social problems. For Stephen Ball: *Social entrepreneurship is an important aspect of entrepreneurship. In this, the objective is not to make profit, but to achieve social good through the process of identifying opportunities, exercising creativity and building new services.*<sup>3</sup>

### **1.3. Paradigms of entrepreneurship**

Research, practice and education are served by the word paradigm. Within each of these fields there are many definitions of the paradigm. We will take as a reference the definition given by T. Verstraete and A. Fayolle: “*A paradigm is a theoretical construct which is the subject of a sufficiently significant part of the researchers who, within the community thus constituted, share the viewpoint proposed by the paradigm.*”<sup>4</sup>

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<sup>1</sup> BALL, (Stephen): “*The Importance of Entrepreneurship to Hospitality*”, in revue Leisure, Sport and Tourism, January, 2005, p.02.

<sup>2</sup> WESTHEAD, (Paul) and WRIGHT (Mike): *Entrepreneurship: a very short introduction*, Oxford University Press, First Edition, 2013, p.21.

<sup>3</sup> BALL (S): Op.cit, p.04.

<sup>4</sup> VERSTRAET, (T) et FAYOLLE, (A) : « *quatre paradigmes pour cerner le domaine de recherche en entrepreneuriat* », Acte du 7eme Congrès International Francophone en Entrepreneuriat et PME, Montpellier, 27-28-29/10/2004, p.02.

According Jaziri and Paturel <sup>1</sup>, Entrepreneurship researchers had always questioned the theoretical and paradigmatic foundations of their discipline. In fact, several researchers ask themselves the question about the retention of an entrepreneurial paradigm or the need to use a multi-paradigmatic reading of this phenomenon. Verstraete and Fayolle have taken up the four dominant and existing paradigms for several years, for research in entrepreneurship:

### 1.3.1. Business opportunity paradigm

Saleh (L)<sup>2</sup> advanced in her doctoral thesis (2010) that in the opportunity Paradigm, there is little importance given to recognizing the business opportunity in all the entrepreneurship process and researchers are leaving the opportunity as if it were acquired. As well, Timmons associates it with the paradigm of the process when he specifies: *“Entrepreneurship is the process of creating or seizing an opportunity and pursuing it regardless of the resources currently controlled.”*<sup>3</sup>

For her the act of doing business is the creation and transformation of an opportunity, regardless of the resources directly controlled. She also highlight: *“The most important sources of opportunity are three: the experience of the entrepreneur, the various circumstances and the systematic search for the opportunity.”*<sup>4</sup>

For Jaziri and Paturel, whether the opportunity is discovered, perceived or created, the challenge and the stakes are in its exploitation.

The opportunity paradigm can be widely used as part of a nonprofit organization as a public university, If we take the example of academic entrepreneurship, we believe that an academic entrepreneur, who is thinking of creating a new university or a new research laboratory, must perceive an opportunity, analyze by the following, to engage in the entrepreneurial action itself

<sup>1</sup> JAZIRI, (Raouf) et PATUREL, (Robert): « *Quels paradigmes sont pertinents pour la recherche sur le phénomène d'acadépreneuriat ?* », Actes du colloque international sur « L'entrepreneuriat à la recherche de l'intention : De l'auto-entreprise à la PME partenariale », Casablanca, 20 et 21 mai 2010, p.03.

<sup>2</sup> SALEH, (Léna): *L'intention entrepreneuriale des étudiantes : cas du Liban*, Thèse de Doctorat en Sciences de Gestion, l'Université de NANCY 2, soutenue le 30 septembre 2011, p.33.

<sup>3</sup> TIMMONS, (J. A) : *New venture creation* . Irwin, McGraw-Hill, 1994, p.07.

<sup>4</sup> SALEH, (Léna): Op.cit, p.36.

### 1.3.2. The paradigm of an organization's impulse

According to Jaziri and Paturel<sup>1</sup>, The first current, initiated by Gartner (1985, 1990, 1995), promotes the idea that entrepreneurship is the creation of a new organization. In fact, Gartner is reputed to be the leader of this paradigm of organizational emergence. In this perspective, studying entrepreneurship is about studying the birth of new organizations, that is, the activities that allow an individual to create a new independent legal entity. As well about this paradigm and through a constructive approach, Verstraete (1999) expressed the entrepreneurial phenomenon in a dialectical analysis on two levels: the creator and the impulse organization.

From this perspective, it seems that this paradigm can be useful in explaining the entrepreneurial action of university members in the context of academic entrepreneurship.

### 1.3.3. Value Creation Paradigm

The concepts “entrepreneurship and creation of value or wealth” are proposed by Bruyat and Fayolle. This conception is the one advanced by Christian Bruyat in his doctoral thesis (1993), known as an epistemological reference in the modeling of entrepreneurial action. For this author, the main object proposed is to be interested in the dialogic individual/creation of value and to study in time and in space the evolution and transformation of this entrepreneurial system.

For Jaziri and Paturel, creating value occupies a vital place in the life of the entrepreneur, in particular on his goals and objectives, his activity, his lifestyle, his social status, his means... according to theme this conception of the phenomenon highlights the main dimensions developed by many researchers: the individual, the object created (an organization and/or an innovation), the environment and the process. The only difference is that the individual-object couple forms a dialogic which are influenced by the distant or near environment and can interact with it. They conclude: *“It seems right today that we must*

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<sup>1</sup> JAZIRI, (R) et PATUREL, (R): « Quels paradigmes sont pertinents pour la recherche sur le phénomène d’acadépreneuriat ? » : Op.cit, p.07.

*privilege this last paradigm. It is, in fact, the one that best characterizes entrepreneurship and entrepreneurs.”<sup>1</sup>*

This paradigm seems to be rich and can be widely apply to the phenomenon of academic entrepreneurship. Indeed, the academic entrepreneur gets new value when creating a new academic institution or a new research laboratory...etc.

#### 1.3.4. The innovation paradigm

In the innovation paradigm, we can highlight the works of Sweeney (1989); Shane and Venkataraman (2000). For Saleh (L), when it comes to innovation, Schumpeter is a historical reference: *“Schumpeter (1935) marks an important evolution in the understanding of the entrepreneurial function; it makes the entrepreneur as an economic agent of a particular species, the engine of technical progress which makes new combinations of means of Production and realizes innovations”<sup>2</sup>*

According to Jaziri and Paturel, the entrepreneur has a special and indispensable role in the evolution of the liberal economic system. It is very often at the origin of breakthrough innovations; it creates companies, jobs and participates in the renewal and restructuring of the economic fabric. The two authors state that: *“the Schumpeterian vision tends to focus on knowledge that is scientific in nature. However, Alter (2000) proposes the ordinary innovation that is carried by all the actors of the Organization. This knowledge, which often has a tacit character, can contribute to the emergence of innovative and difficultly reproducible innovations (Jacobson, 1992)”<sup>3</sup>*. So In this approach, innovation corresponds to new products, new methods of production or organization, new markets, new sources of supply and/or new market structures.

This paradigm can be widely used as part of a nonprofit organization as a public university, as part of the academic entrepreneurship. For example, the academic researcher who is undertaking to create a new research laboratory or the director of the university that creates a new training, a new diploma or a new national or international cooperation is in an entrepreneurial situation.

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<sup>1</sup> Ibid., p.10.

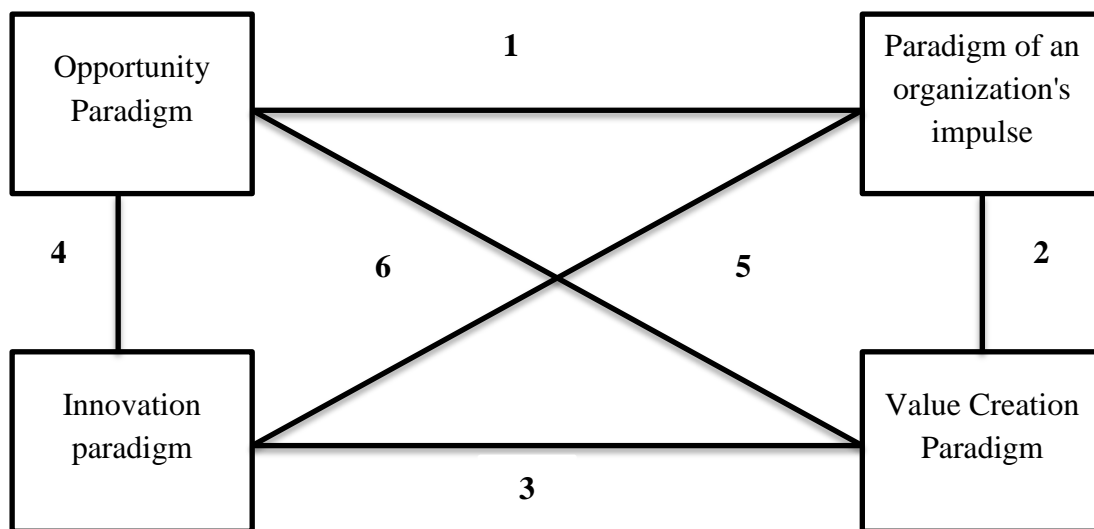
<sup>2</sup> SALEH, (L): Op.cit, p.36

<sup>3</sup> JAZIRI, (R) and PATUREL, (R): « Quels paradigmes sont pertinents pour la recherche sur le phénomène d’acadépreuriat ? » : Op.cit, p.09.

### 1.3.5. The complementarity of the different paradigms

According to Saleh (L)<sup>1</sup>, In order to deepen the concept of complementarity, Verstraete and Fayolle (2005) propose a figure associating the entrepreneurial four key dimensions: creation of value, creation of an organization, innovation and detection of opportunity. The first two paradigms are focused specifically on the outcome of the process, but the latter are oriented towards the process resources. The two authors schematized the links between the paradigms according to the figure below:

**Figure I-1:** Representation of the four paradigms of entrepreneurship and their links



Source : VERSTRAET, (T) et FAYOLLE, (A) : Op.cit, p.17.

This simple Figure highlights the different links between these paradigms:

Link 1: highlight that the various resources are focused in one organization to exploit a business opportunity.

Link 2: explain that in order to exist; the organization must extract the resources necessary for its functioning from the creation of value.

Link 3: The importance of value is proportionally high through innovation; whether organizational, technical or commercial.

Link 4: Innovation can be defined in relation to a business opportunity; it can be a process of socializing a new technique, organization...etc.

<sup>1</sup> SALEH, (L): Opcit, p.39.

Link 5: Any exploitation of an innovation as an opportunity leads to an organization and its existence promotes innovation and development.

Link 6: An opportunity is only captured if it is perceived as likely to generate value.

The links between the different paradigms seem obvious to the extent that entrepreneurship is *a process* that challenges the majority of the paradigms that are interrelated between them. According to Jaziri and Paturel; *“It is very difficult to choose a paradigm and to remain faithful to it. This is why we are increasingly referring to the expression of paradigmatic triangulation or (muti-paradigmatic approach)”*<sup>1</sup>.

Although there are other paradigms exist, we have only quoted the four paradigms developed by Verstrete and Fayolle which best Identify the field of entrepreneurship while demonstrating their links. Also confirmed by Paturel in its definition of entrepreneurship, on which he used the four paradigms *“entrepreneurship is, from an idea, the exploitation of an opportunity within the framework of a driven organization, created from any room or taken up in a first Time, then developed, by a single individual or as a team who undergoes a significant change in his or her life, in a process that leads to the creation of a new value or the wasteful economy of existing value”*<sup>2</sup>.

#### **1.4. Entrepreneurship Research Approaches (SALEH, 2010)**

To address the field of entrepreneurship, many perspectives have been used to deal with this area of knowledge. Chronologically, some researchers present the evolution of research in entrepreneurship by distinguishing three approaches: descriptive, behavioural and procedural.

According to Saleh (L)<sup>3</sup>, All of the entrepreneurial approaches refer to a specific elements of the Gartner Model (1993), which highlights four approaches: an individual approach focusing on the individual (who?), a contextual approach focusing on the context and the environment (Why), An interactional approach based on the process (how?) and the strategic Approach.

In this sub-section we will focus on two parts. The first addresses the different representations of entrepreneurship according to the Gartner model. The second focuses on the intent approach as the crossroads of all other approaches.

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<sup>1</sup> JAZIRI, (R) and PATUREL, (R): « Quels paradigmes sont pertinents pour la recherche sur le phénomène d’acadépreneuriat ? » : Op.cit, p.13.

<sup>2</sup> Ibid., p.13.

<sup>3</sup> SALEH (L): Op.cit, P.46.

### 1.4.1. Entrepreneurship research approaches according to the Gartner model

In his contributions Gartner emphasizes that most researchers do not take into account the environment and the individual in evaluating the change in the entrepreneurial process. The components of the Gartner model include several variables. As a general rule, "individual" includes demographic variables, context, educational and professional experiences, and psychological characteristics. "Organization" includes policy elements, the type of enterprise, the structure and the problems. "Process" includes identifying opportunities, acquiring resources, managing the business, and responding to the environment. "Environment" includes resources, legal government, industry, and technological factors.

### 1.4.2. The entrepreneurial intention approach

The intentional approach is more important to describe in depth the entrepreneurial phenomenon and its background in order to understand and explain it. According to SALEH (2010), the theoretical bases that animate this approach have been borrowed from social psychology, more precisely from the theory of planned behaviour of Ajzen (1991).

The theory of planned behaviour gives the individual's intention a central place in the genesis of behaviour. According to this theory, any behaviour that requires some planning, such as starting a business, can be predicted by the intention to have this behaviour. Thus, *"it is by studying the intentions of an individual to leave the business or not, that it would be possible to predict if this individual will actually create a business."*<sup>1</sup>

According to Hernandez<sup>2</sup>, in this behavioural approach, the creation of an organization is a contextual event; it is the result of many influences and the entrepreneur has an important role in this complex process. Its actions result in the creation of an organization. To this end, the potential entrepreneur is anyone who has an entrepreneurial attitude in a context that reflects a social norm conducive to entrepreneurship by giving him the skills to master the entrepreneurial process.

To synthesize, Saleh (L) highlights that the intentional approach is the interaction between desirability and feasibility. And the project approach is an extension of the intention approach: *"The translation of intention into an entrepreneurial project involves steps that*

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<sup>1</sup> SALEH (L): Op.cit, P.59.

<sup>2</sup> HERNANDEZ, (E.M) : *Le processus entrepreneurial : vers un modèle Stratégique d'entrepreneuriat*, Editions L'Harmattan, p.52.

*promote not only the production of knowledge, and therefore the structuring of the project, but also the work of collecting information.*"<sup>1</sup>

Before positioning the intention in the entrepreneurial process, it is important to describe in more depth the entrepreneur as an important symbol in this complex process.

### **1.5. Approaches to describe the entrepreneur**

Marck Casson in his book *"The Entrepreneur: An Economic Theory"*, considers the definition of the entrepreneur is one of the most crucial and difficult aspects of the theory. He also highlights that in order to define anything we usually use two main approaches: the functional approach and the indicative approach. For him: *"In the context of the entrepreneur, the functional approach says quite simply that 'an entrepreneur is what an entrepreneur does'. It specifies a certain function and deems anyone who performs this function to be an entrepreneur. The indicative approach provides a description of the entrepreneur by which he may be recognized. Unlike a functional definition, which may be quite abstract, an indicative definition is very down-to-earth. It describes an entrepreneur in terms of his legal status, his contractual relations with other parties, his position in society, and so on.*"<sup>2</sup>

#### **1.5.1. Defining an entrepreneur**

Academics continue to debate what defines an entrepreneur, often using the terms self-employed, small business owner, small business owner/manager... however, there is no unified definition.

According to the Oxford Dictionary, an entrepreneur is a person who undertakes an enterprise (i.e. bold or difficult undertaking) or business with the chance of profit or loss; a contractor acting as intermediary; a person in effective control of a commercial undertaking.

For Lundstrom and Stevenson, Arguments persist about whether every business owner is an entrepreneur or whether only innovative and growth-oriented business owners merit the label "entrepreneur". Therefore there is no unified definition. The authors reference to Baumol (1993) and Lowrey's (2003) definitions; the first, aptly describes two uses of the

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<sup>1</sup> SALEH (L): Op.cit, P.59.

<sup>2</sup> CASSON, (Marck): *The Entrepreneur: An Economic Theory*, Edward Elgar, Second edition, Cheltenham, UK, 2003, p.19.

word. One use refers to the entrepreneur as: “*someone who creates and then organizes and operates a new firm, independent of whether there is anything innovative in the act.*”<sup>1</sup>, while the other use refers to the entrepreneur as: “*an innovator, someone who transforms inventions and ideas into economically viable entities, independent of whether in the process he/she creates or operates a firm*”<sup>2</sup>. The second defines the entrepreneur as: “*an economic agent and argues that both types of Baumol’s entrepreneurs are significant for the performance of the economy, although they differ profoundly in their roles, the nature of their influence, and the type of analysis their roles require. One type focuses on the management of survival, routine and the status quo, and the other on creation for advancement, for growth and for dynamics...*”<sup>3</sup>

In their book “*Entrepreneurship: a very short introduction*”, Westhead and Wright refers the entrepreneur to ‘a person who is active and achieves something’. They’ve highlighted a brief history: “*At the beginning of the 17th century, an entrepreneur in France was viewed as ‘a person, who takes risks,’ but not all people who undertook risks were considered entrepreneurs. During the 18th century, a person who was contracted to perform a certain large task, generally for the state, for a fixed price was regarded as an entrepreneur.*”<sup>4</sup>

Summarizing the debate about the definition of an entrepreneur, we take broader definition: The entrepreneur is the main actor of entrepreneurship; it is the one that innovates in the detection and the way of seizing the business opportunities, but also in the organization of the resources necessary for the creation of value.

### 1.5.2. The entrepreneurial process

The entrepreneurial process is at the epicentre of the debate about entrepreneurship, because it concerns what needs to take place to make entrepreneurship happen. Lack of consensus about “*what entrepreneurs do*” and “*who entrepreneurs are*” gives rise to several approaches to understanding entrepreneurs and the entrepreneurial process.

Lundstrom and Stevenson defines the entrepreneurial process as : “*the process whereby individuals become aware of business ownership as an option or viable alternative, develop*

<sup>1</sup> LUNDSTROM, (A) and STEVENSON, (Lois A): Op.cit, p.53.

<sup>2</sup> Ibid., p.53.

<sup>3</sup> Ibid., p.54.

<sup>4</sup> WESTHEAD, (P) and WRIGHT, (M): Op.cit, P.23.

*ideas for businesses, learn the processes of becoming an entrepreneur, and undertake the initiation and development of a business.... Entrepreneurship can be found in both the initiation and growth of businesses”<sup>1</sup>.*

According to Westhead and Wright, the entrepreneurial process involves all the functions and activities associated with perceiving opportunities and pursuing them.

They highlights that accessing resources is the key: “*Some see entrepreneurship as the process by which individuals pursue and exploit opportunities irrespective of the resource they currently control. Others focus on how entrepreneurs can utilize the resource they have to hand, while yet others examine the process by which entrepreneurs access and coordinate their resources.*”<sup>2</sup>

After having a look at the different theoretical constructions of the field of entrepreneurship, we will focus on specific field of entrepreneurship which is “academic entrepreneurship”. Thus, the second section will present the different entry points for academic entrepreneurship, entrepreneurial universities and academic entrepreneur.

## **Section 2: Conceptual framework of academic entrepreneurship**

As argued by a great number of researchers, universities around the world are increasingly shifting from their traditional primary role as educational providers and scientific knowledge creators to a more complex “entrepreneurial” university model that incorporates the additional role of the commercialization of knowledge and active contribution to the development of private enterprises in the local and regional economy. As a result, universities become an increasingly important component; in this section we will try to highlight some of the concepts like the entrepreneurship in the university, academic entrepreneurship and the main characteristics of academic entrepreneur.

### **2.1. Entrepreneurship in the university**

Universities have long confined themselves exclusively to educating students. They have continued to strengthen and support their traditional intellectual and social Mission. However, in recent decades they have been investing particularly in education and research in entrepreneurship. Many programs and trainings related to entrepreneurship have been

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<sup>1</sup> LUNDSTROM, (A) and STEVENSON, (Lois A): Op.cit, p.54.

<sup>2</sup> WESTHEAD, (Paul) and WRIGHT, (Mike): Op.cit, p.24.

launched at universities. As well, many projects of entrepreneurship, framed by teacher-researchers, have emerged.

In their paper *“The development of an entrepreneurial university”*, Guerrero and Urbano highlight that in the literature, some theoretical models have tried to explain the phenomenon of entrepreneurial universities (Clark 1998; Sporn 2001; Etzkowitz 2004; Kirby 2005; O’Shea et al. 2005, 2008; Rothaermel et al. 2007). For them, the entrepreneurial universities’ missions are focused on fulfilling teaching, research and entrepreneurial activities simultaneously. They state: *“Entrepreneurial universities additionally need to become entrepreneurial organizations; their members need to become potential entrepreneurs; and their interaction with the environment needs to follow an entrepreneurial pattern. As a consequence, the outcomes of an entrepreneurial university are linked with its missions; teaching, research, and entrepreneurial activities.”*<sup>1</sup>

According to Jaziri and Paturel, awareness of the imperative need for entrepreneurship within the university has become a necessary condition to boost innovation; nevertheless, universities have become more and more proactive and even *“entrepreneurial”*.

## **2.2. The concept of the entrepreneurial university**

In the classical model of the university, the main missions focus on research and teaching, production and transmission of knowledge within a society. In this model, the researcher is intellectually independent and his or her scientific production is a collective asset. Universities tend to become more and more proactive.

According to Redford and Fayolle, universities also need to develop a more entrepreneurial orientation and culture, and university researchers need to become increasingly entrepreneurial. In fact, this new model gives a greater importance to the relationships between three types of stakeholders: governments, universities and businesses. For them : *“ The modern era acknowledges the importance of a ‘Third Mission’: the economic and social valorization of knowledge produced by researchers within universities, creating the need for strategies, structures and mechanisms within universities that facilitate*

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<sup>1</sup> GUERRERO, (M) and URBANO, (D): *The development of an entrepreneurial university*, Springer, 2010, p.03.

*and intensify knowledge transfer to the private sector, via various avenues: patents, licensing, and facilitating academic spin-offs and start-ups, among others”.*<sup>1</sup>

For Jaziri and Paturel, a cultural change within the university is needed and the transition from a bureaucratic culture to an entrepreneurial culture is the crucial lever towards an entrepreneurial university model. They state: *“the entrepreneurial University must make entrepreneurship its major concern and all its actors must be engaged in this phenomenon.”*<sup>2</sup>

### **2.2.1. From traditional university to entrepreneurial university**

According to Jaziri and Paturel, from the years 1970, some American universities, like Harvard, Stanford or MIT, began to develop internal policies and strategies to encourage and facilitate the haggling of scientific research and intellectual property. This fundamental change at the university level has led to the emergence of the "second University Revolution", also dubbed the "entrepreneurial University" in the sense of several authors. *“We note that the term "entrepreneurial university" was reserved, from the outset, to signify the commercialization of the results of university research in favour of the industry, and then it was extended to evoke the creation of "University spin-offs" by valuing the results of the research it generated (Megha, 2001; Emin, 2003; Bares, 2007).”*<sup>3</sup>

Jaziri and Paturel also highlight that the empirical studies shows that the "entrepreneurial university" model originated in the United States of America, from the signing of the Bayh-Dole Act<sup>4</sup> or "university and Small Business Patent procedures Act", in 12/12/1980; which is a law allowing universities to patent the inventions made by their researchers, even though the research has been fully funded by the state.

### **2.2.2. Definition of Entrepreneurial Universities**

There are several definitions about entrepreneurial universities and the literature review not shows a consensus for one (as shown in Table I-1). For example, in his paper “A literature review on entrepreneurial universities: an institutional approach”, Guerrero defines

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<sup>1</sup> Fayolle, (A) and Redford, (D): *Handbook on the entrepreneurial university*, Elgar, 2014, p.02.

<sup>2</sup> JAZIRI, (R) and PATUREL, (R) : « *academic entrepreneurship ou acadépreneuriat : ver une reconfiguration du modèle de l'Université entrepreneurial* », Actes du 9ème symposium international sur : « Pratiques entrepreneuriales: Quels enjeux pour l'innovation et la croissance économique en Algérie », 30-31 mai 2010, Hilton, Alger, p.05.

<sup>3</sup> JAZIRI, (R) and PATUREL, (R): « *academic entrepreneurship ou acadépreneuriat : ver une reconfiguration du modèle de l'Université entrepreneurial* » : Op.cit, p.06.

<sup>4</sup> This law owes its name to the two American senators who proposed it: Bayh Birch from Indiana and Bob Dole from Kansas

Entrepreneurial University as: *“an university that have the ability to innovate, recognize and create opportunities, work in teams, take risks and respond to challenges, on its own, seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. In other words, is a natural incubator that provides support structures for teachers and students to initiate new ventures: intellectual, commercial and conjoint.”*<sup>1</sup>

**Table I-1:** Principals’ definitions of Entrepreneurial Universities

Year	Author	Definition
1983	Etzkowitz	“Universities that are considering new sources of funds like patents, research under by contracts and entry into a partnership with a private enterprise”
1995	Chrisman, et al.	The Entrepreneurial University involves “the creation of new business ventures by university professors, technicians, or students”
1998	Clark	An Entrepreneurial University, on its own, seeks to innovate in how it goes to business. It seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. Entrepreneurial universities seek to become “stand-up” universities that are significant actors in their own terms”
1999	Subotzky	“The entrepreneurial university is characterized by closer university-business partnerships, by greater faculty responsibility for accessing external sources of funding, and by a managerial ethos in institutional governance, leadership and planning”.
2002	Kirby	“As at the heart of any entrepreneurial culture, Entrepreneurial Universities have the ability to innovate, recognize and create opportunities, work in teams, take risks and respond to challenges”
2003	Etzkowitz	“Just as the university trains individual students and sends them out into the world, the Entrepreneurial University is a natural incubator, providing support structures for teachers and students to initiate new ventures: intellectual, commercial and conjoint”
	Jacob, et al.	“An Entrepreneurial University is based both commercialization (customs made further education courses, consultancy services and extension activities) and commoditization (patents, licensing or student owned star-ups)”.

Source : GUERRERO-CANO (M) et al. Op.cit, p.05.

<sup>1</sup> GUERRERO-CANO, (M), KIRBY, (D) and URBANO, (D): *“a literature review on entrepreneurial universities: an institutional approach”*, presented at the 3rd Conference of Pre-communications to Congresses. Barcelona, June, 2006. p.05.

In this situation, entrepreneurial universities can be considered as ones of the most important institutions and there is clearly a need for more entrepreneurial universities in the sense we view them.

The previous table reveals that there are a few similar characteristics in the definitions, that reveal the importance of factors that affect at these universities, for example: the high interdependence with the government and industry firms, the different sources of income, the entrepreneurial activities of all community members (students, academic and faculty)...

For Redford and Fayolle: *“the entrepreneurial university concept is best utilized if it helps an institution formulate a strategic direction (Clark, 1998), by both focusing academic goals and by converting knowledge produced at the university into economic and social utility (Etzkowitz, 2003). It must not only incorporate entrepreneurship education but also define how start-ups are supported at the university. It must also partner with organizations and champion a vision on how existing infrastructure can be used to sustain entrepreneurial endeavors.”*<sup>1</sup>

In this definition the two authors refers to the third mission of the entrepreneurial university *“commercialization of knowledge”* which is the principal success factor in developing the entrepreneurial dimension within the universities. Universities, consequently, should change their policies, strategies, structures and organizational rules to allow researchers to engage more easily with university activities in relation to the three missions.

### **2.3. Towards a conceptual delimitation of academic entrepreneurship**

#### **2.3.1. Historical overview**

For Jaziri and Paturel<sup>2</sup>, the concept of the "entrepreneurial university" emerged to point out the new role and mission of university. It is used to introduce some economic rationality in the management of universities instead of the political rationality, through the introduction of market mechanisms in the management of universities, as well as the increased involvement of researchers in the technology transfer from the university to the industry.

The majority of entrepreneurial researchers from academia agree that the entrepreneurial model at the outset of universities is rooted in the United States, known as the recognized

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<sup>1</sup> FAYOLLE, (A) and REDFORD, (D): Op.cit, p.03.

<sup>2</sup> JAZIRI, (R) and PATUREL, (R): « L'intention entrepreneuriale de l'universitaire : vers un consensus conceptuel de l'“academic entrepreneurship” à l'acadépreneuriat », Op.cit, p.05.

cradle of university entrepreneurship or Academic. From the years 1970, some American universities, like Harvard, Stanford or MIT, began to develop internal policies and strategies to encourage and facilitate the haggling of scientific research and intellectual property. This fundamental change at the university level has led to the emergence of the "second University Revolution", also dubbed the "entrepreneurial University" in the sense of several authors.

### 2.3.2. Towards a definition of academic entrepreneurship

In her article "*towards a conceptual delimitation of academic entrepreneurship*", Cantaragiu highlights that the study of academic entrepreneurship can be integrated into three main categories expressing the extensiveness of the definitions: commercial definitions, knowledge transfer definitions and value creation definitions<sup>1</sup>:

**2.3.2.1. Commercial definition:** this point of view starts from the idea of for-profit business creation and talk about university spin-offs, the companies started by academia. Here, some authors took into consideration any business created on the basis of intellectual property generated inside universities, irrespective if the entrepreneur was part of the academia or not.

**2.3.2.2. Knowledge transfer definitions:** in this definition the authors who choose to regard academic entrepreneurship as a means of transferring knowledge from the university environment to the market extend the definition so that it includes all the contacts that the academics have with business entities that are the basis of monetary value creation.

**2.3.2.3. Value based definitions:** The third stream of definition embraces the view of entrepreneurship as creation of societal value, without necessarily putting emphasis on monetary value in particular. This paradigm is primarily focused on the means used to obtain a certain results, whereas the others look preponderantly at the results without taking into consideration the means used to achieve them.

According to Jaziri and Paturel, several definitions have been advanced by different authors (Stankiewicz, 1986; Bird and Allen, 1989; Chrisman, Hynes et al., 1995; Slaughter and Leslie, 1997; Henrekson and Rosenberg, 2000; Franklin et al., 2001; Rasmussen, 2004; Shane, 2004; Mendes., Kehoe, 2007; Van der Sijde 2008):

Van der Sijde defines academic entrepreneurship in a clearer way. For him: "*Academic entrepreneurship is the creation of an environment for (active support of) knowledge*

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<sup>1</sup> CANTARAGIU, (R) : "*towards a conceptual delimitation of academic entrepreneurship*", revue in Management & Marketing Challenges for the Knowledge Society, 2012, Vol. 7, No. 4, pp. 3-4.

*exploitation, stimulation of entrepreneurial behaviour among all the members of and institutional structures in the academic community”<sup>1</sup>.*

In their work, Jaziri and Paturel define academic entrepreneurship as: *"the phenomenon by which a member of the university (student, employee, researcher, teacher) creates or resumes a new or existing activity which is dependent administratively or financially on the university without leaving the university (act of intrapreneurship), or creates or takes over an organization legally independent from the university while abandoning (possibly temporarily) the latter (act of extrapolation). To be able to use the term "entrepreneur", in addition to a more or less intense change that must exist for the academic project leader (alone or in a team) at the statutory, functional, professional, geographical or organizational level, the latter must obtain a new value (in the case of an ex-nihilo creation) or an existing value (in case of a recovery) within the entity it impels "*<sup>2</sup>

These definitions show a series of characteristics of the academic entrepreneur that differentiates him from the entrepreneur and the leader. We can summarize them as follows:

### 2.3.3. Scope and delimitation of the "academic entrepreneur"

These definitions of academic entrepreneurship are rich in concepts that allow us to draw the essential types and characteristics of the academic entrepreneur.

#### 2.3.3.1. The different types of academic entrepreneur

In his work, Jaziri<sup>3</sup> highlight four distinct configurations of “the academic entrepreneur”, based on the different definitions of the academic entrepreneurship which authorizes a first typology of the phenomenon.

*a) Academic entrepreneur type 1:* he creates a new activity or academic organization depending administratively or financially on the University (new university institution, new laboratory or research unit, new diploma, new national or international cooperation, etc.) without leaving

<sup>1</sup> JAZIRI, (R) and PATUREL, (R): « L'intention entrepreneuriale de l'universitaire : vers un consensus conceptuel de l'«academic entrepreneurship» à l'acadépreneuriat » : Op.cit, p.07.

<sup>2</sup> Ibid., p.10.

<sup>3</sup> JAZIRI, (R) : « L'acadépreneuriat : une nouvelle thématique de recherche dans le champ de l'entrepreneuriat », in revue Entrepreneuriat, PME durables et réseaux sociaux, Collection Mouvements économiques et sociaux, Edition L'Harmattan, Paris, pp. 3-5.

the latter, it means that the academic entrepreneur saves his status as an employee or an employee.

*b) Academic entrepreneur type 2:* he resumes an existing academic activity or organization depending administratively or financially on the university (institutions, laboratory or research unit, etc.) without leaving the latter.

*c) Academic entrepreneur type 3:* he creates a new activity or a new organization or company legally independent of the University, while leaving the latter to invest on its own account. This type of entrepreneur opted for the creation ex nihilo of a university spin-off relating to the exploitation of an academic idea or not.

*d) Academic entrepreneur type 4:* He resumes an existing organization or company which is legally independent from the University, while leaving the latter.

Jaziri did comment on these results: *“It should be noted that the academics of types I, II and IV have hardly been approached by francophone researchers in entrepreneurship. On the other hand, the analysis of PIRNAY (2001) can serve as a basis for explaining the process and evolution of a category of type III through the creation ex nihilo of University spin-offs exploiting an academic idea...”*<sup>1</sup>

These findings therefore show the abundance of research projects on the subject of academic entrepreneurship.

**2.3.3.2. The different characteristics of the academic entrepreneur:** It is apparent from the definition of Jaziri and Paturol (the previous page) a series of characteristics of the academic entrepreneur that differentiates him from the entrepreneur and the leader and which is summarized as follows:

*a) The academic entrepreneur is a member of the university*

The academic entrepreneurs are active members-of the university. They can be:

- **Students:** they can create or resume businesses after leaving the University, in the form of student spin-offs, by exploiting a research project or the contents of a thesis of graduation;

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<sup>1</sup> Ibid., p.05.

- **Employees:** they may leave the University on a temporary or permanent basis in order to create or resume a business and, if they fail, they return to their original position because of the characteristics of the spin-off policy of their University of origin;
- **Researchers:** it is the members of the laboratories and research units. They may create or resume a business by exploiting an invention patent in the form of University spin-offs. Likewise; they can create a business within the University, without leaving it, while conducting innovative research projects putting their reputation at stake.
- **Teachers:** these are actors who can undertake by creating university spin-offs or intrapreneurship by carrying out projects by creating new activities within the university.

*b) The academic entrepreneur enters the business with a new or existing activity dependent on its University of origin*

In this situation, the academic entrepreneur is a member of the university who operates a legally dependent activity of his employer. In fact, this activity must be under the administrative or financial supervision of the University and, therefore, the academic entrepreneur will not leave its parent organization. The academic entrepreneur, in this case, is in a situation of an academic entrepreneurship.

*c) The academic entrepreneur enters the business with a new or existing activity independent of its University of origin.*

The academic entrepreneur is a member of the University who can create or resume an organization legally independent from its University of assignment. Leaving the University to create or resume a business, he does not leave the cap of academic entrepreneurship. In fact, it is not the academic origin of the idea that makes the academic entrepreneur; but it is the origin of the person.

*e) The academic entrepreneur and the risk*

In the situation by which the academic entrepreneur creates a new activity or academic organization depending administratively or financially on the University, made us think that there is no risk taking by the academic entrepreneur within the University compared to the classical definition which considers the entrepreneur as the one who engages his personal funds and who takes the risk of losing them in whole or in part in case of failure. Indeed, the risk borne by the University official does not concern the commitment of his personal fortune,

but rather on his reputation or notoriety, with adverse consequences for the rest of his career, if he fails. It is therefore above all the nature of the risk that changes, but the risk exists and remains a characteristic of the academic entrepreneurship.

For this study we will take a broader and a common definition of academic entrepreneur: academic entrepreneur is a university member, most often a professor, sometimes a PhD student or any teacher in the university, who sets up a business company in order to commercialize the results of his/her research.

In the light of the above, we were able to focus on the role of the university in the process of boosting the awareness of the imperative need for academic-entrepreneurship as a necessary condition to boost innovation of business creation. Specifically, we focused on the academics entrepreneurs by delineating their main characteristics that differentiates them from the entrepreneurs and the leaders.

## **Conclusion**

Throughout this first chapter, we have positioned ourselves in the field of entrepreneurship and academic-entrepreneurship to be more specific as a very important dimension in knowledge transfer. Hence, according to Jaziri and Paturel <sup>1</sup>, from now on, the relationship between universities and societies leads to a new economic rather than religious or political subordination.

Also, in the light of the above, this research focuses on the role of entrepreneurial intentions in the process of business creation. More specifically, we focused on the entrepreneurial intentions of academic teacher and researchers.

Therefore, before positioning intention in the entrepreneurial process, it is important to describe in more depth the entrepreneurial intention to explain later on what the different theoretical models based on the intentions that have been verified so far consist of and to take a critical view at these models.

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<sup>1</sup> JAZIRI, (R) and PATUREL, (R) : « *academic entrepreneurship ou acadépreneuriat : vers une reconfiguration du modèle de l'Université entrepreneuriale* », Op.cit, p15.

**CHAPTER II:**  
**Conceptual**  
**Framework of**  
**Academic**  
**Entrepreneurial**  
**Intentions**

## **Introduction**

For a better understanding and study of academic entrepreneurship, our presentation uses approaches and definitions of the field of entrepreneurship. The intentional phase of the entrepreneurial process deserves more attention. Indeed, the contribution of theoretical hybridization (psychology, management, sociology, etc.) has encouraged the exploration of the concept of intention.

This chapter therefore discusses two main parts; the first, discuss the main theories of entrepreneurial intention from these different disciplines. To this end, a reading of the foundations of the entrepreneurial intentions approach will be carried out. The purpose of this chapter is to expose a strong phase: the entrepreneurial intention constituting the research problem. An analysis of previous models will highlight the contributions of researchers to understand the mechanisms of entrepreneurial intention (section1).

In the second part, we first present the different models of entrepreneurial intention in the university context, and then we will select an adequate model of the intention to create a business adapted to our study context. To this end we will choose number of explanatory variables from the selected models, to which we then add other variables that we think are interesting to be mobilised in the context of university business creation (section2).

## **Section 1: Conceptual framework of entrepreneurial intention**

This section is a theoretical presentation of the conceptual framework which supports our analysis of the entrepreneurial intention. It is an intentional model, which means; an analytical framework that takes a series of intentions variables into consideration. Hence, the ability of the concept of intention to predict behaviours affirmed during the seventies, particularly with serious methodological development (Ajzen and Fishbein, 1975).

In the context of the on-going study, we believe that it is essential to focus on the definitions and the importance of entrepreneurial intentions in order to clarify our field of research. Secondly, to position intention in the entrepreneurial process, we will first present the intentional process or more generally "the decision-making process". Then, we will explain the "creation process" and its articulation within the entrepreneurial emergence process. Finally, we will focus our intention on the foundations of the entrepreneurial

intentions approaches; here we will present the models of Shapero and Sokol (1982) taken over by Krueger (1993) and the model of Ajzen's (1987) (theory of planned behaviour).

### **What is an entrepreneurial intention?**

Entrepreneurial intention is the first necessary element in the entrepreneurial process. It reflects a person's willingness to create a business. This desire influenced by the personality as well as the beliefs of the individual on the surrounding environment. Furthermore, entrepreneurial intention said to be a reliable predictor or measure of entrepreneurial behaviour and entrepreneurial activity. Therefore, the study of intention helps the proper understanding of the entrepreneurial process, even if the phenomenon does not succeed.

#### **1.1. The concept of intention: definition and importance**

Boyd & Vozikis define the term intention as: *“a state of mind that focuses a person’s attention, experience and behaviour, toward a specific object or method of behaving. Intentions are therefore a person’s willingness to pursue a given behaviour and are a link between beliefs and subsequent behaviour. People form attitudes towards a given behaviour based on a belief that performing that behaviour will result in certain consequences.”*<sup>1</sup>

According to SALEH (L)<sup>2</sup>, in social psychology, intention refers to a resolution by which the agent wants to carry out a project. For Ajzen (1991), intentions are indicators of willingness to act and willingness to behave in a certain way. Without this willingness to act, which leads the person to take steps to promote the advent of its purpose, we can't speak of entrepreneurial intention. In this perspective, intention becomes the central focus of the behaviourism approach.

There is consensus among researchers that the concept of intention is considered the best predictor of planned behaviour (Krueger 1993, Davidson 1995, Kolvereid 1996, Krueger et al 2000, Ajzen and Fishbein (1975, 1980), and Ajzen (1991): *“Intentions are the single best predictor of any planned behaviour, including entrepreneurship. Understanding the antecedents of intentions increase our understanding of the intended behaviour... intentions models will predict behaviour better than either individual (for example, personality) or*

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<sup>1</sup> BOYD, (N. G) and VOZIKIS, (G. S): *“The influence of self-efficacy on the development of entrepreneurial intentions and actions”*, in revue Entrepreneurship Theory & Practice, N° 18, January, 1994, p.04.

<sup>2</sup> SALEH (L) : Op.cit, p.66.

*situational (for example, employment status) variables. Predictive power is critical to better post hoc explanations of entrepreneurial behaviour; intentions models provide superior predictive validity”*.<sup>1</sup>

For BIRD (B.J)<sup>2</sup>, it is the Assembly of personal and contextual factors, which prepare individuals to have an intention to create a business. At the same time, personal factors identify the previous entrepreneurial experiences, personality traits and skills of the individual. Contextual factors relate to social, political and economic variables, such as market changes and government policies.

Thus, the intention should not be confused with "the behaviour" which is called the entrepreneurial act, that is to say the work of business creation. When an intention succeeds, it typically results in a *decision now* to perform some *action later*.

## **1.2. Intention within the entrepreneurial process**

The emergence of a new field of research, the entrepreneurial intention, has prompted us to position the intention at the heart of entrepreneurship. In the first part, we will present variants modelling of the entrepreneurial process. In the second part, we will try to delineate our analytical framework by specifying our position in the entrepreneurial process.

### **1.2.1. Processual models of entrepreneurship**

The notion of process places the psychological, cultural, social, political and economic variables in a double dimension: dynamic and complex. Interactions between these variables remove the importance of the variables taken in isolation.

Shapero and Sokol are the pioneers who have analysed the process dimension of the entrepreneurial phenomenon. They try to understand the triggering of an entrepreneurial event by linking it to situational and individual factors. According to SALEH (L)<sup>3</sup>, in his book on entrepreneurship, HISRICH sees entrepreneurship as the process of creating something different and valuable, devoting the necessary time and labor to it, assuming the financial, psychological and social risks, and receive the fruits in the form of pecuniary and personal satisfaction.

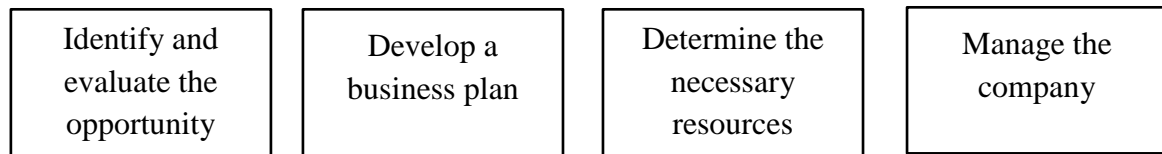
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<sup>1</sup> Ibid., p.66.

<sup>2</sup> BIRD (B.J): “*Implementing entrepreneurial Ideas: The case for intention*”, revue in Academy of Management Review, N°13, 1988, p.442.

<sup>3</sup> SALEH (L) : Op.cit, p.72.

Figure II-1: aspects of the entrepreneurial process Hisrich (1989)



Source: SALEH (L): Op.cit, p.73

According to HISRICH, aspects of the entrepreneurial process are divided into four:

- Identify and evaluate the opportunity: identify the origin and duration of the opportunity, also the risks and opportunity performance and make sure to avoid confrontation of opportunity with personal skills and objectives.
- Develop a business plan: by analysing the market segment characteristics and dimensions, identifying a commercial plan production constraint and financial plan and imperatives, choose the adequate form of organization
- Determine the necessary resources: determine the current resources and resource gaps and supplies availability also insure the access to the necessary resources.
- Manage the company: determine the style and management structure, identify the key success variables, identify problems including potential problems and establish control systems.

According to Tounes: “it is not enough to study those who have concreted their projects but also those who are upstream of this process”<sup>1</sup>. As a result, studying entrepreneurial intention is tantamount to studying the factors that are driving this creative will. We must not just confine ourselves to the individuals who have carried their projects.

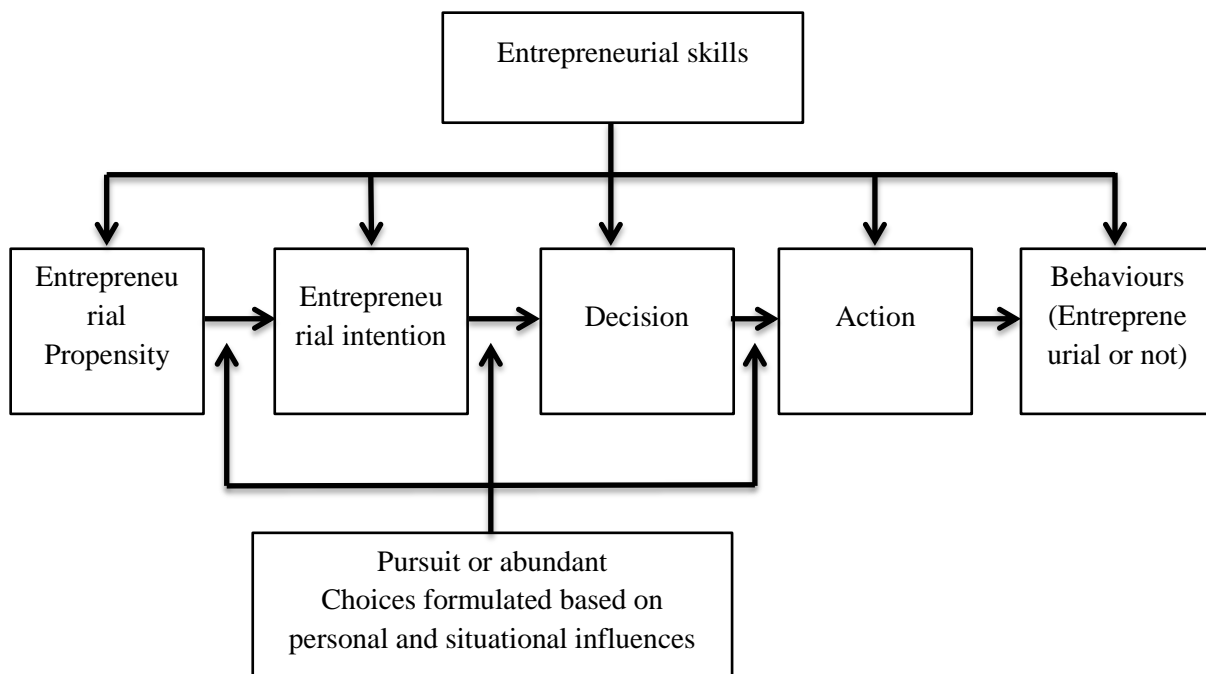
In addition, the identification of the beginning of the entrepreneurial process has been the subject of several debates in the literature; for this reason, in our research we will follow the approach brought by the same author and consider that “entrepreneurial intention is a phase upstream of the entrepreneurial process”<sup>2</sup>. Entrepreneurial intention is therefore an important

<sup>1</sup> TOUNES, (A) : « l'intention entrepreneuriale des étudiants : le cas français », in revue des sciences de gestion, N°219, 2006, p.57.

<sup>2</sup> TOUNES, (A) : *L'intention entrepreneuriale : une recherche comparative entre des étudiants suivants de formations en entrepreneuriat (Bac+5) et des étudiants en DESS CAAE*, thèse de doctorat en sciences de gestion, université de Rouen, 2003, p.47.

phase of the business creation process, which is subdivided as follows: propensity, intention, decision, Act and behaviour.

Figure II-2: different phases of the entrepreneurial process



Source : TOUNES, (A) : Op. Cit, p.47.

The previous figure highlights five (5) stages of the entrepreneurial process: propensity, intention, decision, Action and behaviour. These steps are influenced by the entrepreneurial attitudes of the individual.

The entrepreneurial propensity means that an individual under the influence of his environment (family, training...) will be sensitive to the idea of creation, and shall not dismiss this choice. The propensity can then be transformed into intention. This transformation is reflected in: *“the existence of a more or less formalized idea or project, and personal commitment in the process of creating a business”*<sup>1</sup>.

The action of starting business corresponds, according to TOUNES, to the "physical" start of the activity that is manifested in the realization of the first products or services. Moreover, some authors equate the entrepreneurial act with the legal and administrative launching. While most of them join the opinion of TOUNES who categorically refuses this idea, the

<sup>1</sup> Ibid., p.49.

ultimate goal of entrepreneurship is the creation of wealth to individuals and the nation, the goal will be achieved only by the production of goods and services.

In terms of behaviour, we can say that the entrepreneurial intention which is the main object of our research is: an individual willingness to anticipate the behaviour of an individual toward the idea of founding his business. The latter is under the influence of psychological, social, cultural, environmental factors... and, in turn, influences the steps that succeed in the entrepreneurial process.

### **1.2.2. The intention upstream of the entrepreneurial process**

The previous analyses have highlighted the procedural dimension of entrepreneurship, including, in this way, different phases.

SALEH (L) notes that intention or the willpower is the first element necessary to create an organization. It reflects the objective or objectives of the creator (or creators). It translates into finding useful information to act: *“the entrepreneurial process consists of a process leading to the decision to create, the upstream phase of a more global approach that leads to the existence of a company and a process of creation once the idea is germinated.”*<sup>1</sup>

In this paragraph in order to position the intention in the entrepreneurial process, we will first present the intentional process or more generally “the decision-making process”. Then, we will explain “the process of creation” and its articulation within the process of entrepreneurial emergence.

#### **1.2.2.1. The decision process**

The decision-making process is a mental, action-oriented process. The decision is therefore the condition of the change of behaviour. The intention occupies a central place in this process consisting of three stages<sup>2</sup>:

- The first step is the formation of a vision, which corresponds to a mental representation of the creation of the company, its activities and its environment, as possible future.

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<sup>1</sup> SALEH (L) : Op.cit, p.74

<sup>2</sup> Ibid., pp .75-84.

- The second step is the transformation of this vision into intention. This step deals with the formation of the vision and the transformation of this vision into a true intention of creation.
- The third step is decision-making; it triggers the action and thus leads to the first actions of realization of the intention. In order for the action to be truly triggered, the intention must be transformed into an action decision. Even the strongest intentions do not necessarily lead to action. Thus, many individuals, who are interested in the creation of a company, never materialize this desire through genuine deeds of creation. The intention may therefore be abandoned, temporarily or definitively. A project that remains in the state of idea would be considered only as a simple thought.

#### **1.2.2.2. The creative process**

According to Saleh<sup>1</sup>, the process of creation is the transformation of intention into action. It corresponds to the approach that leads the individual to actually create a new business; It is when the individual moves from the intention phase, to a phase in which he spends his time, invests financially and intellectually in the project of creation; this is the transitional period. It should be noted that the link between intention and action is neither immediate nor certain. The commitment of an individual in a process of creating a new business becomes a decisive variable to understand the transition to the action and the actual appearance of the new business.

The transformation of the mental state (intention to create) to the active state (creation of the company), depends on certain psychological and external factors that can induce or inhibit the action. The intention alone is not enough to predict the actual creation of the company. If the intention to create allows to predict the possibility of initiation of the action (triggering of creation actions), it is less useful to determine its outcome (the actual creation). For there to be effective creation, there has to be commitment. Commitment is a vital process for the creation of the company and for the survival of the company.

### **1.3. Theoretical foundations of the entrepreneurial intentions approach**

After accepting the idea of a relationship with behaviour, the researchers attempted to highlight the necessary conditions, for intention, to predict behaviour. To do this, they identified situational factors, categories of intentions, and determinant variables. Research has

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<sup>1</sup> Ibid., p84

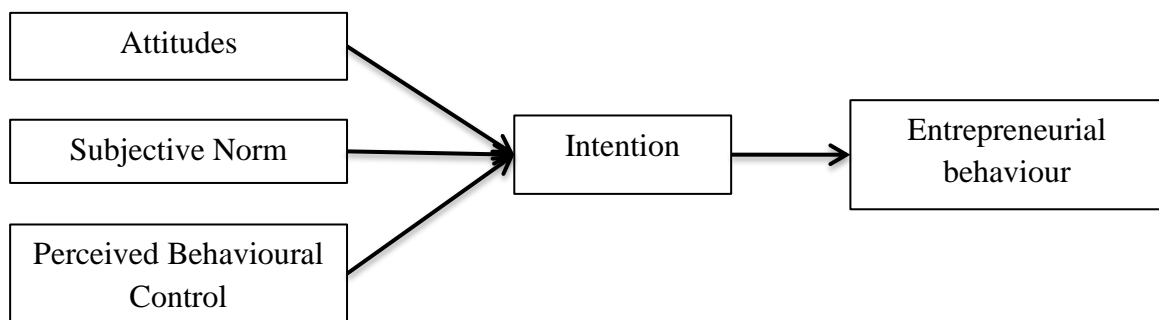
recently been concerned with the process of determining the *intention/behaviour* relationship. In other words, it is now “how” intentions can guide the behaviour that provides material to new studies. The two main theories that inspired the researchers to answer this question are the theory of the entrepreneurial event Shapero and Sokol (1982) and the planned behaviour theory of Ajzen (1991). The first, specific to the field of entrepreneurship underlines the importance of the preference of the entrepreneurial Act measured by desirability and feasibility. The second, borrowed from the corpus of social psychology, is interested in the context of the entrepreneurial event measured by psychological factors (attitude), sociocultural factors (social norms) and contextual factors (perceived control).

To explain in depth the entrepreneurial intention, we will in this sub section illustrate its theoretical foundations by highlighting two (02) major approaches, namely: the approach of Shapero and Sokol, (1982) and the approach of Ajzen, (1991).

**1.3.1. Theory of planned behaviour Ajzen and Fishbein (1991)**

The model developed by Ajzen (1991) consists of three variables (figure below) that precede the formation of the intention that predicts the behaviour. The first variable of the model is the attitude towards a given behaviour. Specifically, this construct measures the extent to which the behaviour is perceived by the individual as desirable. The second corresponds to social norms, that is, the individual's perception of the opinion of the people around them as to the behaviour given. As for the third variable, it is the perception of the individual as to the control he holds over the given behaviour.

**Figure II-3:** The conceptual model of Ajzen (1991)



Source: SALEH (L): Op.cit, p.88.

In this model, the intention would be a mediator, a catalyst and a predictor; the result would be the intention to create a business. Attitudes would be prior to the intention that is itself prior to the behaviours. Also, it captures the three motivational factors that influence behaviour, which are the following (Ajzen, 1991):

- **Attitude towards the behaviour:** refers to the degree to which the individual holds a positive or negative personal valuation about being an entrepreneur. According to Bouhdjeur<sup>1</sup>, Kim and Hunter (1993) conducted meta-analyses of 93 independent behavioural intentions studies concluding by confirming strong empirical support for the attitude intentions relationship. In their study, behaviours were divided into nineteen different topics; examples include intention to vote, intention to have a child...etc. As expected, the relationship between attitude and behavioural intention was stronger than that between behavioural intention and ultimate behaviour, due in part to the effect of external factors as noted by Ajzen (1991).

- **Perceived social norms:** It would measure the perceived social pressure from one's peers and significant others impacting one's intention to carry out -or not- that entrepreneurial behaviour.

- **Perceived behavioural control:** It would be defined as the perception of the easiness or difficulty in the fulfilment of the behaviour of interest (becoming an entrepreneur).

According to SALEH (L)<sup>2</sup>, the theory of planned behaviour, through its three components (attitudes associated with behaviour, social norms and perceptions of behavioural control), contains and partially encompasses entrepreneurial intention, as cognitive process influenced by psychological, socio-cultural and environmental factors. However, the theory of planned behaviour neglects emotional variables such as threat, fear, mood and negative or positive sentiment and has evaluated them in a limited way.

### **1.3.2. The Entrepreneurial Event Model of Shapero and Sokol (1982)**

Shapero and Sokol (1982) were pioneers of the approach of intentions in the field of entrepreneurship; their model was verified by Krueger (1993).

#### **1.3.2.1. The conceptual model of Shapero and Sokol**

Shapero and Sokol (1978) discuss the social dimensions of entrepreneurship and pose a paradigm that focuses on the following question: how the members of the group, the social and cultural environment affect the choice to become an entrepreneur. Shapero and Sokol (1982) pose the postulate that for a person to initiate a serious change in his life, an event

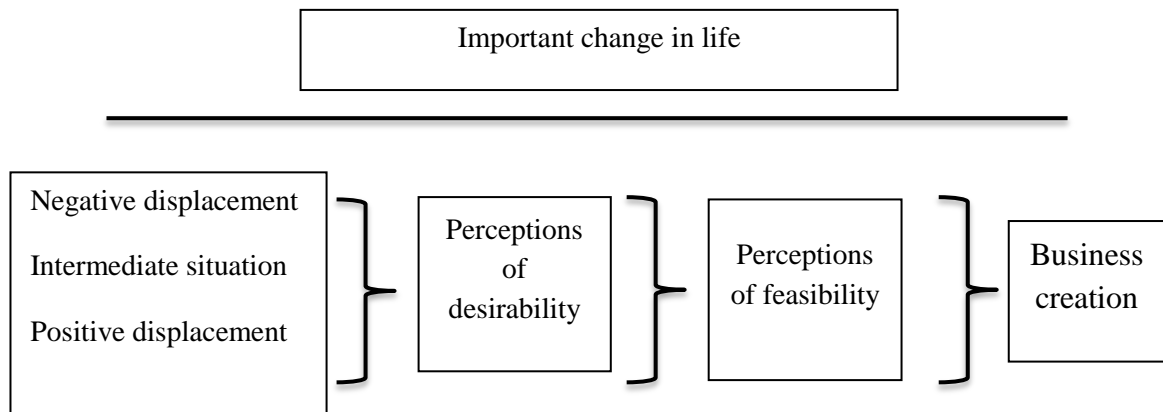
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<sup>1</sup> BOUHDJEUR, (R): *The Entrepreneurial Intention among Algerian Students*, thesis of Master's Degree In Commercial Sciences, Ecoles des Hautes Etudes Commerciales of Algiers, 2012, p.40.

<sup>2</sup> SALEH (L): Op.cit, p.89.

must come to trigger such a decision. They have explained the entrepreneurial Act by three groups of factors that highlight significant changes in life (Figure II-4).

**Figure II-4:** Model of the entrepreneurial event of Shapero and Sokol (1982)



Source : TOUNES, (A) : Op.cit, p.14.

According to TOUNES<sup>1</sup>; “Negative displacement” refers to divorce, emigration or dismissal; “intermediate situations” represent the exit of the army, the school or the prison; “positive displacement” can be the influence of the family, the existence of a market or potential investors.

- **The concept of displacement:** Saleh (L)<sup>2</sup> found that unlike Ajzen, Shapero and Sokol state that for an individual to initiate a change of career orientation towards creation, an event must precipitate such a decision: the situation leads to displacement. A majority of business creations resulting from an event disrupting the life path of the potential entrepreneur This positive or negative event results in the precipitation of the decision to start a business. This situation that Shapero calls "displacement" serves as a catalyst for initiating action.

- **The dependence between feasibility and desirability:** the individual can judge the desirable but not feasible Act and the feasibility influences our perception on what is desirable. The perception of desirability and the perception of feasibility are interacting. For reasons of simplicity and understanding, Shapero and Sokol (1978) treat both factors separately.<sup>3</sup>

<sup>1</sup> TOUNES, (A), « *l'intention entrepreneuriale des étudiants : le cas français* », in revue des sciences des gestions N°219, 2006/3, p.14.

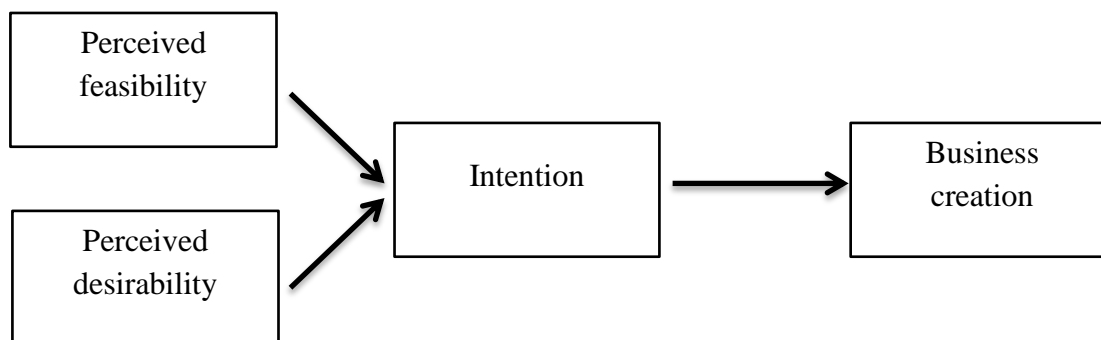
<sup>2</sup> SALEH (L): Op.cit, p.90.

<sup>3</sup> Ibid., p.90.

## 1.3.2.2. The Entrepreneurial Event Model verified by Krueger

This model has since its conception been commented on and verified by Krueger, who is undoubtedly one of the most fervent followers in the field of entrepreneurship.

**Figure II-5:** The conceptual model of Shapero and Sokol (1982) as retaken by Krueger et al. (2000)



Source: SALEH (L), *opcit*, p.92.

SALEH (L)<sup>1</sup> notes that the entrepreneurial event is conceived as a complex phenomenon but based on a linear trajectory. The relationship between action and intention is indirect in the sense that it is influenced by the explanatory variables or “displacements”. However, Krueger realizes that the variable “displacement” adds nothing to the understanding of the model. . The common idea is that in order for individuals to develop an intention to create their business and later to act, they must have favourable attitudes towards the Act of undertaking. More specifically, the formation of entrepreneurial intention depends on the desirability and feasibility perceived.

In simple terms, entrepreneurial intentions are explained (and predicted) by two main backgrounds: the perceived desirability of action and the perceived feasibility of this action. Likewise, the intention is influenced by attitudes, social norms and perceived control. Thus, according to Saleh, Researchers interested in theories of intention assume the similarity between the theory of planned behaviour and the theory of entrepreneurial event. Indeed, the perception of desirability (or the degree of perceived attractiveness for behaviour) was assimilated to the concept of the perceived social norm and the attitude towards planned behaviour developed by Ajzen. Feasibility (or the perception of support variables and aids of different kinds), in turn, was referred to the concept of perceived control of the theory of Ajzen's planned behaviour.

<sup>1</sup> Ibid., p.92.

In the light of the above, we were able to focus on the role of entrepreneurial intentions in the process of business creation, by highlighting psychological, socio-cultural and environmental factors. More specifically, we focused on the entrepreneurial intentions of academic teacher and researchers.

## **Section 2: Conceptualizing academic-entrepreneurial intentions**

Section two proposes a model of the intention to create a company adapted to our study context. We first present the limitations of the explanatory models of intention in the academic context to discuss the need to retain a modified conceptual framework. This framework combines the explanatory variables of intention from the selected models, to which we add, then, other variables that seem interesting to us to mobilise in the context of the creation of a business in academia.

Our willingness is, therefore, to select and test a model based on the entrepreneurial intention of academics. Specifically, this model aims to check with academics whether their perceptions of social networks, environmental conditions, attitudes and their self-efficacy influence their intention to become an entrepreneur. This model is based on study assumptions. These are presumptions of behaviour or relationships between objects studied. In a second time, we formalize our thinking by presenting a body of assumptions reflecting the role of these variables in our study.

### **2.1. Models of entrepreneurial intention in the university context**

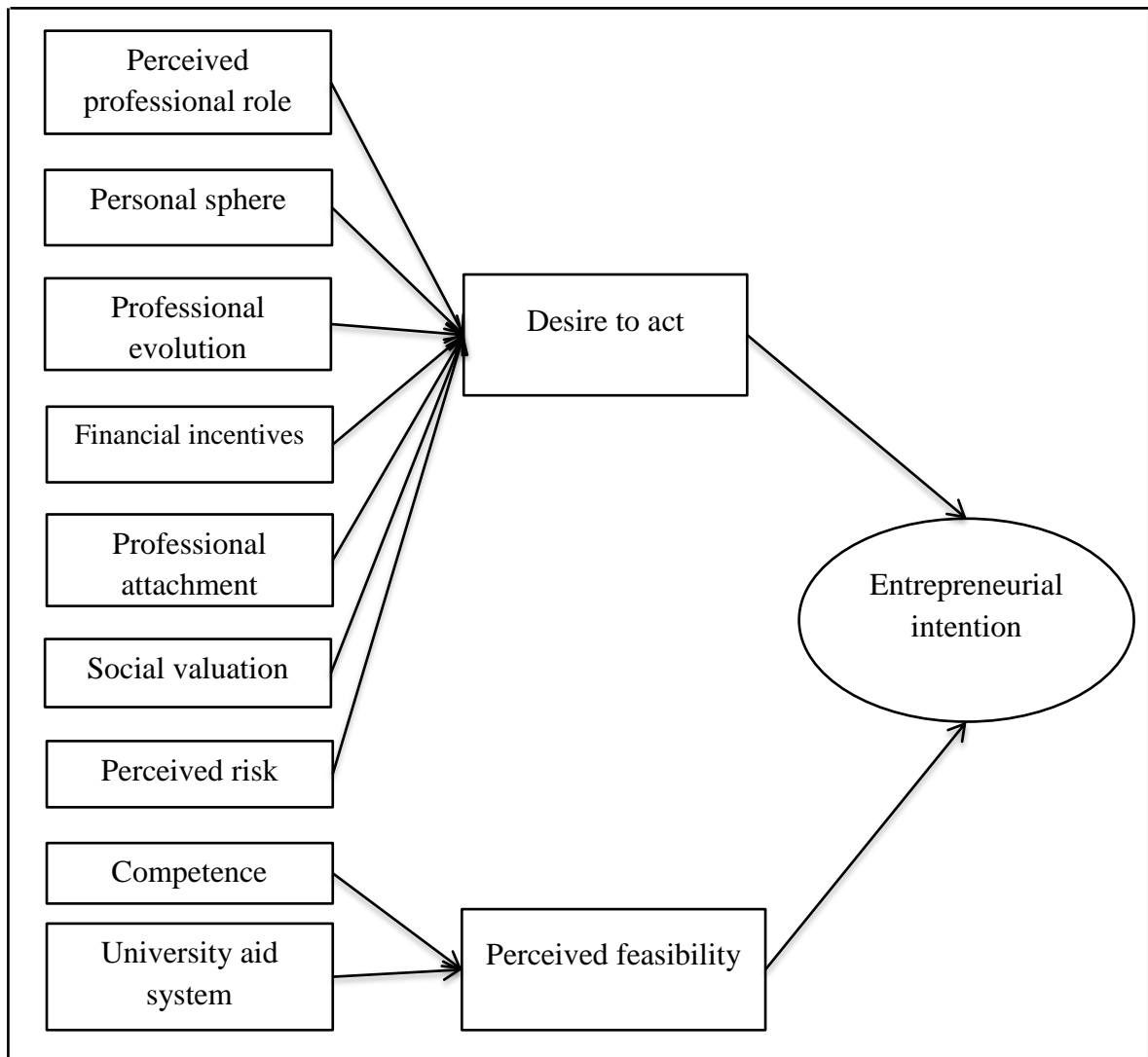
We will discuss various types of models already proposed by the research to try to describe and explain the phenomenon as a whole. These studies specifically concern academics population ( Emin (2001), Tounès, 2003, Fernández-Pérez (V) et al (2014)).

According to SALEH (L)<sup>1</sup>, in her work Emin (2003) analysed the influence of the academic environment on the creation of a company by public researchers. The author found that the main factors encouraging public researchers to embark on entrepreneurial adventure are the perceived desirability and feasibility. In the particular context of academic research, the degree of desirability of the Act contributes more to the prediction of the intention than the perceptions of the feasibility.

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<sup>1</sup> SALEH (L), opcit, p207

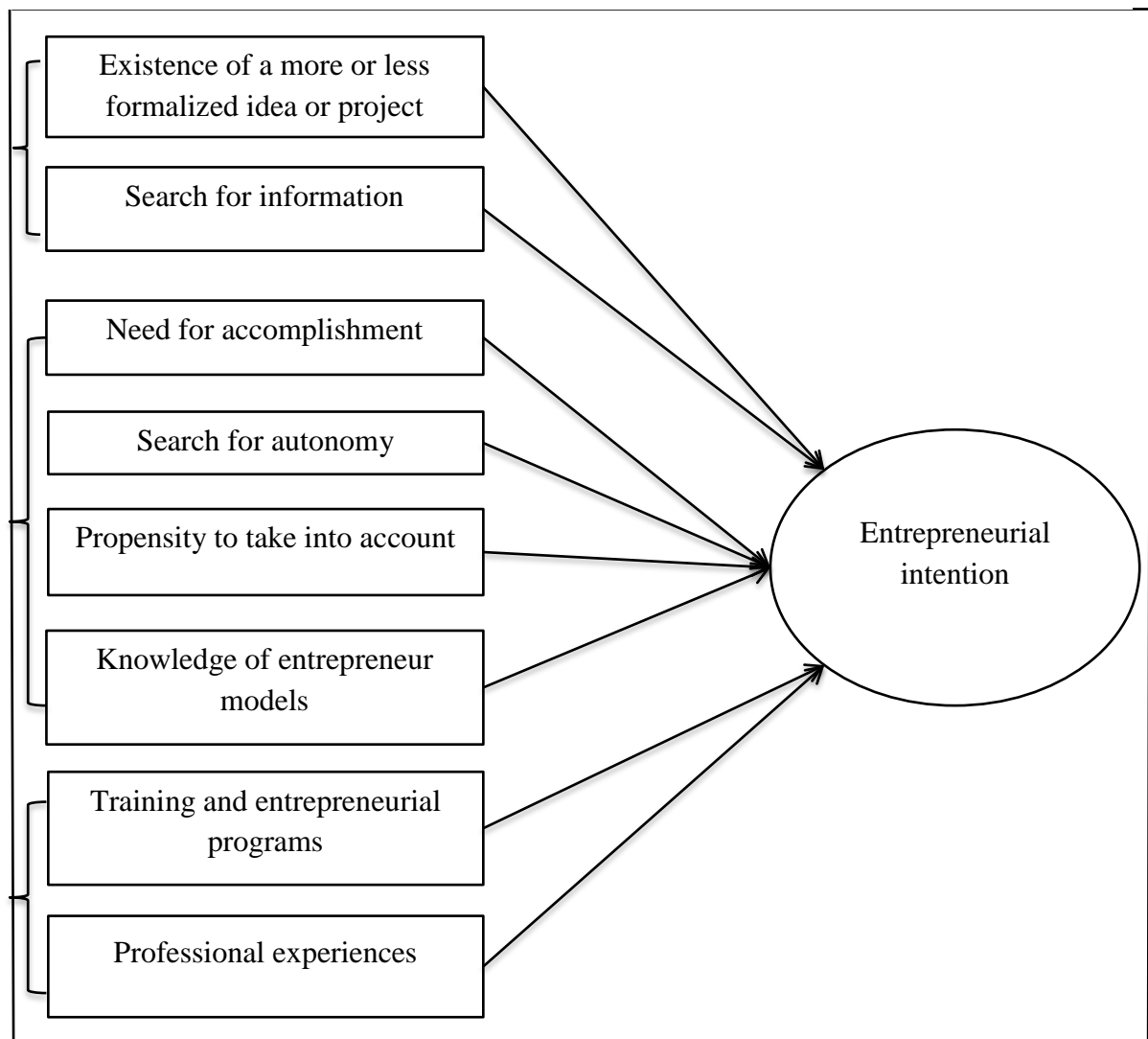
Figure II-6: The model of intention to create a business of public researchers EMIN (2003)



Source: SALEH (L): *Op.cit*, p.207.

In her model, Tounes (2003) notes that entrepreneurial intention is apprehended from a hypothetical deductive model within which three groups of variables are retained. The first group contains the attitudes associated with the behaviour specified by the existence of an idea or a business project and the search for information. The second group consists of the social norms expressed by the need for accomplishment, the search for autonomy, the propensity to take risks and the existence of models of entrepreneur. The last group, finally, contains the perceptions of behavioural control contained in professional and associative experiences.

**Figure II-7:** An explanatory and predictive model of entrepreneurial intention validated with students following entrepreneurship programs or trainings (Tounes, 2003)

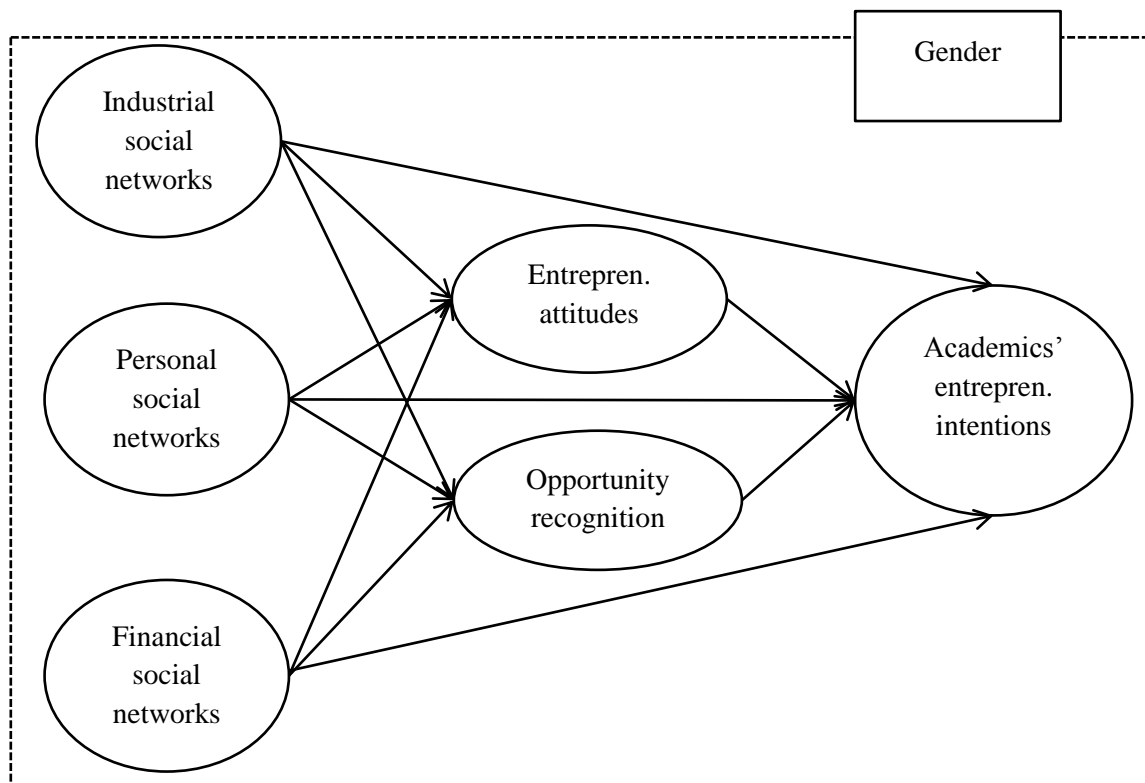


Source: SALEH (L): Op.cit, p.206.

In their paper Fernández-Pérez (V) et al (2014), analysed the role of social networks and their effects on academics’ entrepreneurial intentions, from an academic cognitive perspective. Specifically, they investigate how profesional and personal social networks, through opportunity-relevant information and support, could influence academics’ intentions to start a business venture on the basis of their research knowledge. Tested on 500 Spanish academics engaged in commercially oriented fields of research, the results obtained highlight the positive roles played by business (industrial and financial) networks, both directly in promoting entrepreneurial intention. The study also finds that male and female academics

differ in their perceptions of support from business and financial networks and in their use of these resources in business start-up.<sup>1</sup>

**Figure II-8:** The conceptual model of the intention to create a business of academics



Source: Fernández-Pérez (V) et al : Op.cit, p.299.

**2.2. Limits of the entrepreneurial intention theories**

Our research is based on the idea that the intention is the "best predictor of planned behaviour". In this perspective, Shapero (1984) and Ajzen (1991) provided conceptual models that can describe and predict the formation of entrepreneurial intention.

According to SALEH (L)<sup>2</sup>, Ajzen's theory of planned behaviour sparked a first debate based on Giddens's work. The action may precede the intention or at least the intention does not necessarily imply the action. A second debate highlights that the link between entrepreneurial intent and the entrepreneurial act is not established. The models would remain partial and would not make it possible to report on the entire entrepreneurial process. However, research on entrepreneurial intention has been done in specific contexts. In

<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: "Business social networks and academics' entrepreneurial intentions", in revue Industrial Management & Data Systems, Vol. 114, No. 2, August , 2014, pp. 292-320.

<sup>2</sup> SALEH (L): Op.cit, p.212.

particular, the work on public researchers or students is precisely populations where the entrepreneurial act is rare especially in the field of business creation.

SALEH (L) notes that the models of Ajzen and Shapero, remain incomplete. We are inclined to believe that the validation of a causal link between intentions and the move to action could be problematic because of the degree of control that an individual possesses on the Act of creating a business; *“as Ajzen (1991) points out, in order for the perception of control to actually be used to predict behaviour, there must be a good match between that perception and reality. For illustrative purposes, if an individual considers himself capable of leaving a business and believes that he is in his control to do so when in reality he lacks the knowledge, skills or resources necessary to achieve it, his intentions risk strong to never materialise.”*<sup>1</sup>

To overcome this limit, studies on the only intention can be justified in the face of the study population, which is, in our case, academics. The object is not to report a complete entrepreneurial process. We will be interested in the relationship between intention/action

### **2.3. Proposed model and research hypotheses**

As we can see, the literature is bursting with entrepreneurial models without a consensus. In the light of all these shortcomings, the model of the entrepreneurial event and the planned behaviour proves to be the best indicated to develop a research approach to study the intention in a university context. As a first step, we will analyse the conceptual framework chosen. In a second step, we process successively, the attitude associated with behaviour, social norms (personal and professional social networks) and perceptions of behavioural control (the effect of surrounding environment and self-efficacy) as an important factor for opportunity recognition. Although, there are many variables involved in entrepreneurial intention, which variables to select among those quoted in the literature?

In this sub section we will define the main variables: predictor variables and control variables.

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<sup>1</sup> Ibid., p.213.

### **2.3.1. Predictor variables**

According to assertions of the theory of planned behaviour of Ajzen (1991) and the model of Shapero and Sokol (1982) in the context of entrepreneurship, formation of entrepreneurial intention in general is dependent on an individual's perceived ability to execute the intended behaviour (that is expressed through academic's surrounding environment; from government support to university support and through his professional experiences and self-efficacy) of entering entrepreneurship, whereas his desirability of an entrepreneurial career is depended on his attitudes and subjective norms (that are formed through interactions in one's personal social networks.)

#### **2.3.1.1. The influence of professional social networks on AEI**

Social networks constitute a crucial mechanism for accessing the resources needed to undertake a business start-up. Academic entrepreneurs could benefit from their social networks, thus obtaining information and support to commercialise the results of their research, a factor of great value to persons who are often not business or market-oriented.

The influence of professional social networks may be measured in this study by three important determinants; (1) the academic's previous professional experiences, (2) the exposure to prior entrepreneurial experiences and (3) the influence of the professional forums and seminars on his entrepreneurial intention.

**a) Previous professional experiences:** Fernández-Pérez et al highlight that academic entrepreneurship literature shows that the relationship between academic researchers and industry partners (for example: through working for a company or by the involvement in consulting activities.) is positively and significantly associated with the extent to which the academic researcher engages in knowledge transfer; *“It has been suggested that in the early stages of the entrepreneurial process, when academics have a social network of industry contacts, this provides them with access to business-related information and support (positive recommendations or advice), which can help them develop or find new business opportunities”*<sup>1</sup>. Moreover, contacts in the industrial world may raise awareness that academic work and knowledge has market potential, thereby increasing academics' ambitions and

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<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: *“Business social networks and academics' entrepreneurial intentions”*: Op.cit, p.295.

attitudes to become actively involved in the exploitation of this potential by starting up their own firm.

To measure these findings in depth, we've mobilised two items reflecting the effect of the exposure to this prior professional experiences:

- *Experience in working for a company:* according to Saleh (L)<sup>1</sup>, Starr and Fondas (1992), find that the early socialization of the entrepreneur precedes his decision to become an entrepreneur. This first level of entrepreneurial socialization refers to preparation, learning and experience. This data tends to confirm that entrepreneurs do not start a business without first having some experience in the field concerned, this seems particularly true for university researchers who have more theoretical than practical knowledge.

- *Experience in consulting activities:* According to EMIN<sup>2</sup>, consulting is often the first step towards more advanced forms of collaboration. Consulting is important for entrepreneurship for several reasons: it provides a direct means of establishing personal contacts and most importantly, it gradually facilitates participation in a new business. From this perspective, we asked our participants if they had participated in consulting activities.

Since the intentions of creators depend on their perception and experiences and from the literature review, we find that:

**H1a:** academic's prior professional experiences are significantly related to their EI.

**b) Exposure to prior entrepreneurial experiences:** according to Pablo et al<sup>3</sup>, entrepreneurship research highlights that prior entrepreneurial experience increases the probability of identification and exploitation of entrepreneurial opportunities since it helps to develop the skills necessary to undertake such functions. Thus, prior experience in identifying entrepreneurial opportunities is likely to increase a researcher's perception of the commercial potential of his/her current research activities. Thus, we put forward the following:

**H1b:** the exposure to prior entrepreneurial experiences influences academics' intention towards entrepreneurship.

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<sup>1</sup> SALEH (L): Op.cit, p.226.

<sup>2</sup> EMIN, (Sandrine): Op.cit, P.12.

<sup>3</sup> PABLO, (D) et al: *Academic entrepreneurship: what are the factors shaping the capacity of academic researchers to identify and exploit entrepreneurial opportunities?* DENMARK, June 17 - 19, 2009, p.06.

c) **Experience in professional forums:** professional forums are viewed also as the relations derived from the attendance at forums and seminars which contributes to information sharing and continuing education with members who share common vocabularies and ways of thinking. Fernández-Pérez et al state that: *“The existence of a common vocabulary among colleagues, together with shared attitudes and skills and the access to potential resources, could enhance the level of perceived control in a new entrepreneurial process.”*<sup>1</sup>

Thus, by relying on the shared meanings communicated in these forums, colleagues influence each other’s attitudes and behaviour by providing credible and relevant information about an object or situation. We thus posit the following hypothesis:

**H1c:** academic’s experience in professional forums is significantly related to their entrepreneurial intentions.

In accordance with all these considerations, we propose the global hypothesis:

**Hypothesis 1:** academic’s professional networks are significantly related to their EI.

#### **2.3.1.2. The influence of personal social networks on AEI**

The influence of personal social networks may be measured in this study by two important determinants; (1) the academic’s personal networks (family members, close friends and colleagues) and (2) the influence of perceived role models on his entrepreneurial intention.

a) **Perceived personal support:** we use the term personal social networks in the sense of relationships with those in our immediate environment, such as relatives, friends and colleagues with whom we have a friendly relationship. In addition, personal social networks (family and close friends) are analysed, as their support is often crucial to the would-be entrepreneur’s decision to proceed. Hence, According to Prodan and Drnovsek, an important step of the entrepreneurship process is to fill in gaps with needed resources. The authors highlight: *“Personal networks provide entrepreneurs with information (e.g., market information, new opportunities) as well as tangible resources (e.g., human resources,*

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<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: “Professional and personal social networks: A bridge to entrepreneurship for academics?”, in revue European Management Journal, Elsevier,2014,p.04.

*financial resources) and intangible resources (e.g., social support, problem solving) held by other actors.*"<sup>1</sup>. In accordance with these findings we formulated the following assumption:

**H2a:** Academic's perceived personal support is significantly related to their EI.

**b) Perceived role models:** according to Prodan and Drnovsek, the sociology of entrepreneurship has identified role models and peers as an important driver of entrepreneurial activity. Thus, Academics who have started their own firms can also become advisers to those newly embarking on a venture. The effort to found companies by pioneering faculty members can lead other faculty members to create new ventures because it leads them to believe that doing so is an easy and desirable activity. Thus, we formulate that:

**H2b:** The extent of perceived role models is positively related to the intensity of academic-entrepreneurial intentions.

In accordance with all these considerations, we propose the global hypothesis:

**Hypothesis 2:** Academic's personal social networks are significantly related to their EI.

### **2.3.1.3. The influence of environmental conditions on AEI**

According to Saleh (L), several studies show that the entrepreneurial environment of the academic researcher partially conditions the transition to the act of undertaking. She also highlights that business creation is a direct result of individuals' intentions, which are of course influenced by environmental variables. Intention is, of course, primarily a personal will, but it depends on contextual variables. The literature review notes that the perceived feasibility of the act of creating a business is often associated with the environmental context. Thus, we formulate that:

**Hypothesis 3:** environmental conditions influence negatively academic's entrepreneurial intentions.

The influence of environmental conditions may be measured in this study by three important determinants; the influence of university support, political and economic environment on academic's researcher EI.

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<sup>1</sup> PRODAN, (P) and DRNOVSEK (M): "Conceptualizing academic-entrepreneurial intentions: An empirical test", in revue Technovation N°30, 2010, pp. 332–347.

**a) The influence of university on AEI**

It has been indicated that the supportive role of universities changes accordingly to beneficiaries and mobilization of resources. Universities has to setup the policies and instruments that aimed to develop a platform for academic spin- offs which can effect positively on academic's behaviour toward entrepreneurship. Samo and Huda highlight that: *“academia has to promote policies and instruments which are focused to promote the entrepreneurial intentions to become entrepreneurs and create a platform for academic spin-offs”*<sup>1</sup>. Moreover, university supports have been shown to be beneficial in raising academics' awareness of entrepreneurship possibilities, and in boosting their ambitions and attitudes in this respect. They may also push academics to commercialise the results of their studies which would also strengthen AEI.

Although in Algeria, we observe deficiency to insufficient perceived support from these institutions. We thus posit the following hypothesis:

**H3a:** universities' insufficient support effect negatively on academic's behaviour toward entrepreneurship.

**b) The influence of government on AEI**

According to Miranda (F.J) et al<sup>2</sup>, entrepreneurial activities may also be explained by the influences of the surrounding political and economic environment. Academics have emphasized that government policies characteristic of the local context (e.g., flexibility of laws and regulations, financial investors...etc.). In accordance to these statements, in their paper “Triple helix and academic entrepreneurial intention”, Samo and Huda highlight that the governmental support at various levels has to be adopted for innovative start-ups. They state: *“government is a central body to formulate the set of rules and normative conditions for the implementation of entrepreneurial activities. Similarly, the role of government also includes the provision of financial incentives and physical representation of incubators and*

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<sup>1</sup> SAMO (A) and HUDA (N): *“Triple Helix and academic entrepreneurial intention: understanding motivating factors for academic spin-off among young researchers”*, revue in Journal of Global Entrepreneurship Research, N°12,sept, 2019, p03.

<sup>2</sup> MIRANDA (F.J) et al: *“Academic entrepreneurship in Spanish universities: An analysis of the determinants of entrepreneurial intention”*, revue in European Research on Management and Business Economics, N°23, January, 2017, pp. 117.

*science parks that have been shown to be key elements in fostering entrepreneurship and process of innovation for start-ups”<sup>1</sup>*

In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment: teacher and entrepreneur at the same time. Thus we notice that academic researchers are disadvantages regarding to this severe laws and regulation, we propose, therefore, the following hypothesis:

**H3b:** government’s laws and regulation effect negatively on academic’s behaviour toward entrepreneurship.

#### **c) The influence of industry on AEI**

Entrepreneurial activities may also be explained by the influences of the surrounding business environment, in this case we consider the contribution of industry in the economy. According to Samo and Huda, universities operate in a business environment become a useful resource for the development and growth of academic spin-offs. Numerous Studies have indicated that “financial support” presence of industries in the region context can influence the creation of start-ups within economy. Moreover the presence of firms in the region working in the similar industries can facilitate the exchange of experiences, knowledge and information.

In Algeria, especially for an academic researcher, it is difficult for to find investors to commercialize his research. In addition we must highlight that there is a remarkable lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups and spin-offs. We thus posit the following hypothesis:

**H3c:** industry’s insufficient support effect negatively on academic’s behaviour toward entrepreneurship.

#### **2.3.1.4. The influence of EA on AEI**

Fernández-Pérez (V) et al, state that in various fields, a series of studies and have produced evidence that attitude is usually one of the strongest and most consistent indicators of intention and behaviour. Specifically, in the case of the study on entrepreneurial behaviour, entrepreneurial attitudes were shown to reflect individuals’ behavioural beliefs (positive or

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<sup>1</sup> Ibid., p.67.

negative evaluations) toward entrepreneurial attributes and possible outcomes. Hence with regard of AEI, we expect that if academics have a favourable attitude toward entrepreneurial activities and the commercial use of their research results they will show a higher predisposition to devote time, resources and efforts to the creation of new businesses. We propose, therefore, the following hypothesis:

**Hypothesis 4:** EA has a direct, positive effect on AEI

#### **2.3.1.5. The influence of SE on AEI**

Together with attitudes, another well-known antecedent of intention is self-efficacy. In studies of entrepreneurial behaviour, it has been found that beliefs in self-efficacy may be relevant to uncovering the skills necessary to succeed in each of the different stages that a potential entrepreneur must experience, especially that of identifying an opportunity for entrepreneurial initiative. Fernández-Pérez (V) et al note that: *“in the academic context, the extent to which opportunities are identified in prior research could be a crucial factor in early stages of the entrepreneurial process, even when individuals may lack other types of entrepreneurial skills”*<sup>1</sup>.

Therefore, we expect that academics high in self-efficacy with respect to business start-up will be more confident and self-assured and believe they can successfully discover and exploit opportunities, thereby boosting their entrepreneurial intentions (AEI). Thus, we propose the following hypothesis:

**Hypothesis 5:** SE has a direct, positive effect on AEI.

#### **2.3.2. Control variables**

We used a number of control variables reflecting the characteristics of individual university researchers. We aimed to control for individual experience and career-stage effects through the following variables: (a) researcher’s age, (b) their gender and (c) academic’ professional status.

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<sup>1</sup> Ibid., p.297.

**2.3.2.1. The influence of age on AEI**

According to EMIN<sup>1</sup>, for researchers, there is still a question about the influence of age. For some, this factor could be incentive factor. For others, it is only weak and non-systematic predictors of entrepreneurial intention. Prodan and Drnovsek<sup>2</sup> Highlight that a recent global entrepreneurship monitor report showed that younger people are more active in new firm creation than are older people. In particular, early-stage entrepreneurial activity is most prevalent among individuals 25–34 years of age and least prevalent among individuals 55–64 years of age. Thus, we propose the following hypothesis:

**Assumption 1:** academic's age has a direct, negative effect on their EI.

**2.3.2.2. The influence of gender on AEI**

Research by Fernández-Pérez (V) et al<sup>3</sup> highlight that within general research into entrepreneurship, several studies have found that gender have an impact on the development of entrepreneurial intentions. These studies suggest that gender factors may affect the predisposition toward entrepreneurial intentions and thus constitute an indirect influence in this respect. In addition it has been reported that women not only view themselves as being less capable to become entrepreneurs but also perceive their environment as more difficult and less appropriate for entrepreneurial initiatives. Therefore, we propose to study whether there are differences between male and female academics regarding perceptions on business start-up. The existence of such differences may help explain the lower level of entrepreneurial activity among female academics. This is important in relation to female entrepreneurs operating in academia that are less active in commercialisation of scientific discoveries.

**Assumption 2:** academic's entrepreneurial intentions differ between male and female.

**2.3.2.3 The influence of professional status on AEI**

According to EMIN<sup>4</sup>, the factor that most influences the creation of spin-offs is the status and quality of academic researchers, which also influences the strength of entrepreneurial commitment (to create with or without leaving university). EMIN also highlight that young researchers (young PhD students or researchers on short-term or

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<sup>1</sup> EMIN, (Sandrine) : *La création d'entreprise en contexte universitaire* : les facteurs de l'engagement, Faculté des Sciences de l'administration, 13-14-15 juin 2001. P.12.

<sup>2</sup> PRODAN (I) and DRNOVSEK (M): Op.cit, p.335.

<sup>3</sup> FERNÁNDEZ-PÉREZ (V) et al: "*Business social networks and academics' entrepreneurial intentions*": Op.cit, p.298.

<sup>4</sup> EMIN, (Sandrine): Op.cit, P.12.

occasional contracts), whose academic careers are not yet guaranteed, would thus have a greater incentive than statutory researchers to undertake (risk of unemployment, no statutory and regulatory constraints, fewer cultural constraints, a lower career perspective...etc.). These findings are also confirmed by Prodan and Drnovsek<sup>1</sup>, who state that academics' job stability and reputation normally depend on teaching and publications. Because entrepreneurship activity involves substantial inherent risk, an academic may jeopardize his or her career path by creating spin-offs and reducing other research responsibilities. We propose, therefore, the following hypothesis:

**Assumption 3:** academic's professional status is significantly related to their EI.

In the light of the above and after having a look at the different theoretical approaches of the entrepreneurial intentions, we were able to present the different models of entrepreneurial intention in the university context, hence we've selected a model of the intention to create a business adapted to our study context.

## **Conclusion**

Throughout this second chapter, we have positioned ourselves in the field of entrepreneurial intentions. We've found that according to Saleh (L), the intention to create occupies a central place in the process of entrepreneurial emergence. It refers to different logics where the intentional logic and the logic of action may be of a different nature. To this end, the study of intentions will have the advantage of being a true predictor of a population's predispositions and entrepreneurial potential.

Around the plurality of approaches, the main part of our contribution is to underline the importance of the existence of the intention approach, the strength of its consistency and the opportunities it opens to the community through its uniqueness. We noted that the intentions approach uses the three approaches mentioned above because:

- The intention is derived from psychology which refers to the descriptive approach;
- The intention and its background are influenced by several factors including the context and environment that refers to the contextual approach;
- The intention is upstream of the process that refers to the interactive approach.

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<sup>1</sup> PRODAN (I) and DRNOVSEK (M): Op.cit, p.335.

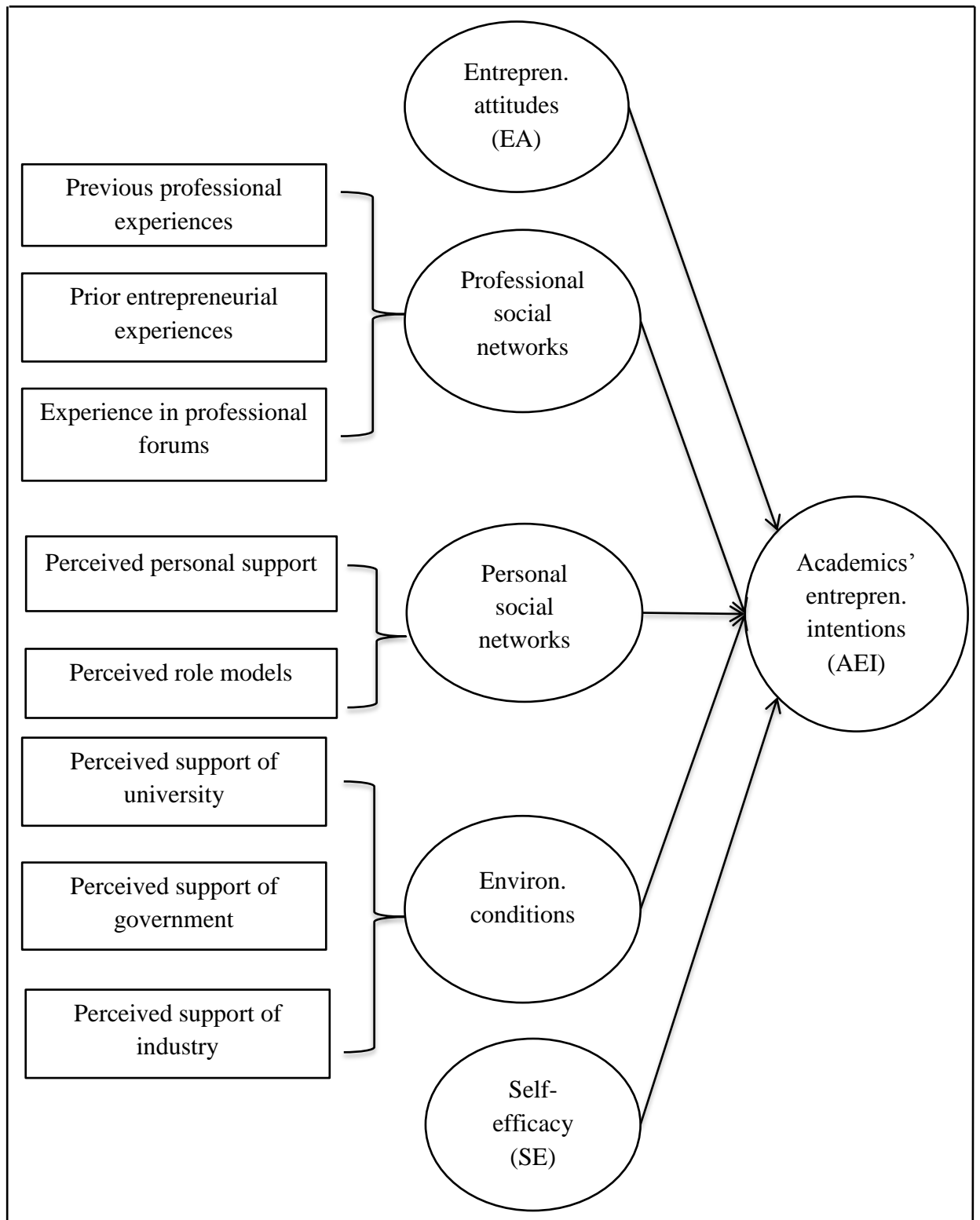
The review of theories on the intentional behaviour of business creation made it possible to understand the functioning and arrangement of the variables explaining entrepreneurial intention. However, even if the theoretical contribution of the various studies is undeniable, it must be noted that most models aspire to a standardization of the construction of entrepreneurial intention. Thus, we favour models that consider the multidimensional and dynamic nature of entrepreneurial intention. Indeed, the latter is a system of interweaving individual and environmental variables. To become reality, intention depends on the environment in which it evolves.

However, we have sought to adapt the intention models and apply them to our particular subject and study context, by focusing on making a contribution at both the theoretical and practical levels.

The model brings together the variables that, in one way or another, influence academic's entrepreneurial intentions. The documentary research based on the general framework of the Shapero entrepreneurial event according to Krueger and on Ajzen's theory of planned behaviour (1991), the presentation of Fernández-Pérez (V) et al models built on entrepreneurial intention, reflections as well as personal choices allowed us to analyse the explanatory variables of the intention entrepreneurial and to give acceptances.

Thanks to the hypotheses we have been able to formulate, we therefore seek to explain the impact of factors related to social networks, environmental conditions ...etc, on the entrepreneurial intention. These hypotheses allow us to propose the research model. Inspired by Ajzen's (1991) theory of planned behaviour and based on Krueger's social dimensions of Shapero's entrepreneurship (Figure II-9 summarises the conceptual model and the relationships hypothesised).

Figure II-9: The conceptual model of academic-entrepreneurial intentions.



Own conception

**CHAPTER III:**  
**Validation of the**  
**Entrepreneurial**  
**Intention**  
**Analysis Model**

## **Introduction**

After synthesizing the general research model and presenting the underlying hypotheses in the previous chapter, we wish to test them empirically. To this end, this chapter presents the study methodology adopted and describes the actors involved in academic's entrepreneurial intentions.

This chapter provides a better understanding through the exploratory study with academics researchers through the general description of the socio-demographic data of the questionnaire. Moreover, in this chapter, we will present the homogeneity tests of the constructs, and we will test the hypotheses resulting from our research model. First, we will perform factorial analyses and Cronbach alpha tests. This will allow us to move on to the aggregation and purification of items related to the scales of measurement of the questionnaire. The parametric test will help us analyse the intention according to academic's age, gender and professional status. Then, we will test the relationships formulated in our research hypotheses to determine, if they exist, the nature and significance of the determinants of academic's entrepreneurial intention. Finally, this work will allow us to discuss the results of this study in relation to the selected theoretical model.

## **Section 1: Research methodology**

In this section we will clarify the choices made for the research path. First, give a brief overview of the concerned business school where our study has taken place. Second, we will explain the approach of analysis and data collection, regarding the choice of using the quantitative method. Finally, we wanted to study the specificities of the sample respondents in view of their main role in entrepreneurship through a general description of the socio-demographic data of the questionnaire.

### **1.1. Overview of the receiving business school: E.H.E.C-Alger**

EHEC Algiers in short, is a public institution of a scientific, cultural and professional nature with a legal personality and financial autonomy (created by Executive Decree No. 08-223 of 14 July 2008). It is governed pedagogically, hierarchically and administratively under the supervision of the Ministry of Higher Education and Scientific Research (MESRS).

#### **1.1.1. The business school's missions**

The fundamental missions assigned to the E.H.E.C. can be demonstrated as follows:

- Provide higher education, scientific research and technological development in the various fields of commerce.
- Contribute to the national scientific research and technological development effort;
- Participate in the international scientific community in the exchange and enrichment of knowledge.

### **1.1.2. The entrepreneurial culture within the business school**

The business school invests a generous effort promoting entrepreneurship, through several mechanisms, one of them is the “House of Entrepreneurship”, which is the appropriate tool on which the “ANSEJ” relies to foster entrepreneurial values and introduce young students to the act of undertaking to realise their ideas and bring out projects with high added value that contribute to the development of the national economy. Also this business school gives a great attention hosting seminars and workshops dealing with entrepreneurs problems. Finally, and as part of its external relations policy, the business school has launched several partnership projects with national and foreign partners. This type of project is in line with the business school's strategic vision to develop exchange and share its knowledge and skills. These partnerships are responsible for promoting and establishing a real policy of rapprochement between the business school and the world of business.

The entrepreneurial culture of this business school is the main reason for us to choose it as good site to conduct our study; hence the academic's surrounding environment plays a great deal in boosting their entrepreneurial intentions.

## **1.2. Research methodology**

The purpose of this paragraph is to present the methodological approach adopted to conduct our study. Three parts will be discussed; in the first part we will discuss the objective of our survey, in the second part we will present the targeted respondents. And the third part will be devoted to analysis methods and data collection.

### **1.2.1. Main objectives of the survey**

The main objectives sought through this survey are:

- Is to be able to answer the main problematic, which is to analyse the determinants of the entrepreneurial intention of Algerian academic teachers and researchers.
- See the higher education teacher's point of view on academic entrepreneurship.

- Invalidate or confirm our hypotheses and validate our proposed model of intention.

**1.2.2. Targeted respondents**

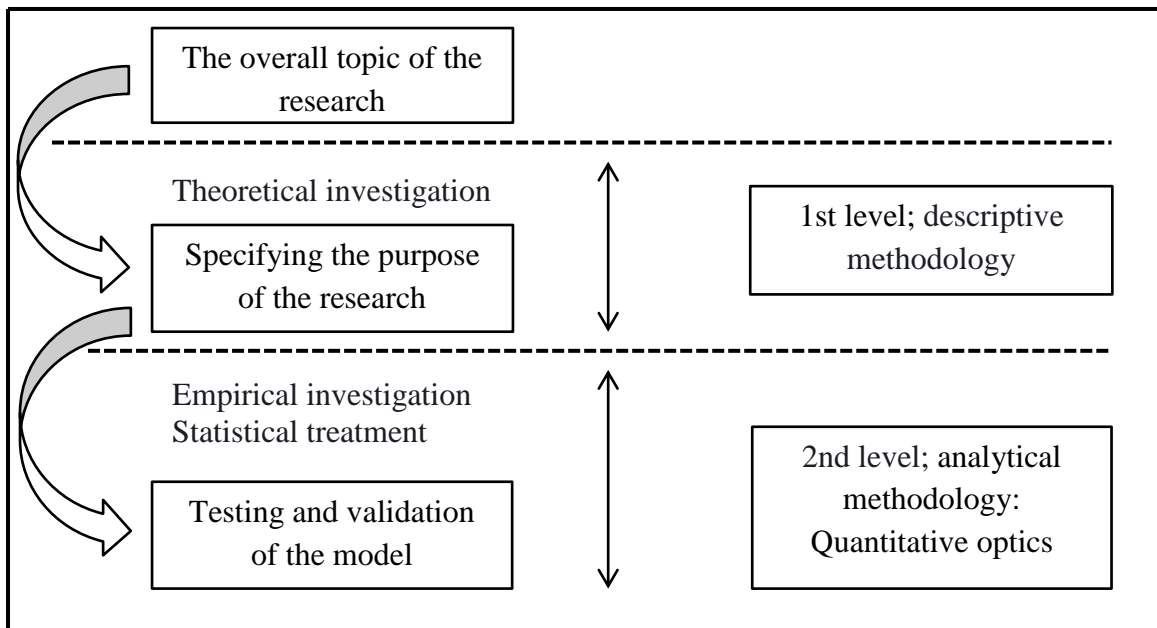
The target of our study is oriented towards the population of academic teachers and researchers in the higher education institution: E.H.E.C-Alger. Our sample consists of fifty three (53) teachers. The choice of this sample was justified on the pretext of the importance of the academic researchers in the strategy for the development of the phenomena of academic entrepreneurship and knowledge transfer in university–industry.

**1.2.3. Research paths: exploring and testing**

In this paragraph, we will try to answer the question “what is our research path?”

The methodology followed in this study is based on two main processes of knowledge construction: exploration by descriptive methodology and testing by using the analytical methodology. Thus, the objective of the descriptive methodology is exploring a phenomenon by making a clean slate of previous knowledge on the subject. This path has basically allowed us to discover new knowledge on the determinants favouring entrepreneurship. In our study, we tried to select the adequate model of intentions. For the analytical methodology, our study consists of testing hypotheses from the preliminary construction. It is quantitative in nature. Hypothesis verification must be based on extensive data collection, generally by means of a questionnaire and analysed by statistical processing. We preferred to use the questionnaire as an investigative tool, as it offers the possibility of standardization and comparability of the measurement.

**Figure III-1:** The methodological approach



Source: own conception

#### **1.2.4. Choice of using the quantitative method**

To ensure that our survey ran smoothly, we opted for a quantitative sample survey. In line with this logic, we chose the questionnaire as the means of collecting the data needed to develop our study work.

The objective of our reflection is to better understand the entrepreneurial intention of academics researchers and, in particular, the impact of social network and business environment on entrepreneurial intention. The virtual absence of academic literature on academic entrepreneurship in Algeria has led us to quickly seek information in the field. Consequently, the field analysis allowed us to aggregate the essential elements to improve our questionnaire, then deductive approach by which we have tested and validated hypotheses resulting from the theory.

These approaches have proceeded in three successive steps:

- Theoretical exploration.
- Sending questionnaires to 71 academic teachers and researchers.
- An illustration/confrontation of hypotheses not validated by the statements of the various respondents to our exploratory study.

#### **1.3. Analysis method and data collection**

We conducted a literature search to gather complete information on the academic entrepreneurship. The literature review was an opportunity for us to discover new dimensions of this problem and to obtain explanations based on previous studies. The literature review is a necessary transitional step towards the development of the questionnaire. The analysis of the information resulting from the first exploration approach made it possible to finalise the questionnaire that was administered to academics researchers.

Through this questionnaire, we seek to understand the entrepreneurial intention of the business school researchers. Through the questionnaire, we aim to collect a very large amount of information. This technique seems appropriate for our research purposes; we developed a fairly reliable questionnaire. Several precautions were taken regarding the ease of understanding to motivate business school's academics to respond. Various statistical tests were then carried out, the first of which is a description of our reference sample.

### 1.3.1. Drafting the questionnaire

To write a questionnaire, it is recommended to develop a questionnaire based on clear information and translated into specific questions. We constructed our questionnaire based on the literature review and our reflection. The questionnaire consists of 24 questions of several types; we've used closed questions in order to facilitate the respondent's work, the coding of answers and their analyses. We've mobilised dichotomous questions (*in this case the respondent's choice can be summarized in two possibilities -YES or NO-*) and questions in scale form. Most items were measured using Likert-scale, five-point scales (1 – “totally disagree” to 5 – “totally agree”). About 7 minutes are required to answer the questions (see appendix I).

According to Saleh (L), in order to be confident that the questions asked would allow us to satisfy our problems and address our various research sub-objectives; we must follow a data collection grid based on the model proposed by Robert Paturel; “ *This model consists of five steps: (1) define precisely the problem of the thesis; (2) determine the corresponding sub-objectives; (3) specify the dimensions to be mobilised to answer these main questions; (4) choose the information to be used to measure the dimensions to be evaluated; (5) elaborate the questions to be asked to update this information.*” This work ensures that the questionnaire includes all the essential questions and no unnecessary questions.

To this end, the final structure of the investigation tool was then articulated into four parts:

Part 01: relevant to academics' professional and personal social networks.

Part 02: About environmental conditions.

Part 03: psychological factors of attitude and self-efficacy

Part 04: complementary information includes introductory questions (control variables) related to gender, age, professional status, scientific field of the academic researcher.

Given the importance of the questionnaire as a measurement tool that determines the quality of the results of the survey, we will detail the content of the different parts through the main themes addressed.

#### 1.3.1.1. About academic's entrepreneurial intentions

The objective of this part was to identify the presence of the intention and to measure its intensity to know if there was a search for information and in which sector of activity the academic would prefer to undertake.

1. Do you have an entrepreneurial intention?

Yes  No

*If yes, please answer the following questions, if No, please skip to question 23*

2. If you identify possibilities for a commercial application for your researches, your entrepreneurial intentions would be?

*Please rate each proposal from 1 (totally negative) to 5 (totally positive)*

3. In which sector of activity do you prefer to do business?

Agro-food industry

Tourism Services

Training and Consulting Services

Logistics and Distribution

Manufacturing industry

others

#### 1.3.1.2. About academics' professional social networks.

The objective of this dimension was to measure the effect academic's prior professional and entrepreneurial experiences on his EI, with the addition to the effect of their experiences in professional forums.

##### *a) Exposure to prior entrepreneurial experiences*

In accordance with hypothesis H1b, which postulates that past entrepreneurial experiences influence the attractiveness of entrepreneurship, we have formulated the following questions:

4. Have you been personally involved in the creation of a university spin-off or start-up in the last 10 years?

Yes  No

5. What was the influence of this professional implication on your entrepreneurial intention?

*Please rate each proposal from 1 (Very negative) to 5 (Very positive)*

##### *b) Previous professional experiences*

To operationalize the first hypothesis H1a which highlight that previous professional experiences influence intention towards business creation, we formulated the following questions:

6. Are you/were you employed in a company?

Yes  No

7. What is the influence of working for a company on your entrepreneurial intention?

*Please rate each proposal from 1 (totally negative) to 5 (totally positive)*

8. Do you think that your work in a company will help you to?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree)*

- a) Identify opportunities for commercial application of your research?
- b) Strengthen your professional network?

9. Have you participated in consulting activities for a company?

Never  Sometimes  Several times

10. What is the influence of these consulting activities on your entrepreneurial intention?

*. Please rate each proposal from 1 (totally negative) to 5 (totally positive)*

11. Do you think these consulting activities will help you to?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree)*

- a) Identify opportunities for commercial application of your research?
- b) Strengthen your professional network?

**c) Experience in professional forums:**

In order to operationalize hypothesis H1c, which aims to study the influence of the attendance at forums, conferences, seminars on AEI we have selected the following proposals:

12. Have you participated in conferences, seminars dealing with entrepreneurship issues in the last 5 years?

Yes  No

13. What is the impact of these events on your entrepreneurial intention?

*Please rate each proposal from 1 (totally negative) to 5 (totally positive)*

14. Do you think that your contacts or discussions with your colleagues at these events could provide you with useful information to commercialise your research?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree).*

### 1.3.1.3. About academics' personal social networks.

The objective of this dimension is to measure the effect academic's frequented environments such as personal support and the effect of role models and peer on his EI.

#### a) *Perceived personal support:*

We believe, as indicated in H2a, that the influence of the environment can be related to the AEI. In addition, personal social networks (family and close friends) are analysed, as their support is often crucial to the would-be entrepreneur's decision to proceed. We formulated the following question:

17. If you decide to set up an entrepreneurial project, would you expect support and encouragement from your close relations (family, friends, and colleagues)?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree).*

#### b) *Perceived role models:*

Through this theme we seek to understand to what extent entrepreneurial models influence the entrepreneurial intentions of creators (Hypothesis 2b). Indeed, according to Saleh<sup>1</sup> (2010) some studies (Volery et al. (1997), Tounès, 2003) show that these models influence business creation. Thus, we've closed these items:

15. Are there any entrepreneurs (liberal professions, entrepreneurs, etc.) in your environment?

Yes  No

16. What is the impact of exposure to these entrepreneurial models on your entrepreneurial intention?

*Please rate each proposal from 1 (totally negative) to 5 (totally positive)*

### 1.3.1.4. About environmental conditions

This dimension is dictated by hypothesis 03 relating to the environmental conditions that might be an obstacle for the academic researcher towards the creation of business.

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<sup>1</sup> SALEH (L), opcit, p270

a) *Perceived support of university*: In accordance with hypothesis H3a which postulates that the Algerian universities are not inclined in spending time and money to help researchers commercialise their research.

b) *Political and economic environment*: in this part we want to investigate the suggestion that researchers have to deal with so many obstacles concerning political and economic context in Algeria. In accordance with hypothesis H3a, H3b, H3c, we formulated the following question:

18. To what extent would the following factors block the development of entrepreneurial intention among teachers/researchers?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree).*

1. Higher education institutions are not interested in spending time and money to help researchers commercialise their research?
2. In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment; teachers and entrepreneurs at the same time.
3. It is difficult for a researcher to find investors to commercialize his research.
4. There is a lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups.

#### 1.3.1.5. Psychological factors of attitudes

In accordance with hypothesis 4, which suggests that attitude towards entrepreneurship has a direct, positive effect on AEI, we formulated the following question:

19. What do you think of the following statements?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree).*

1. You have an entrepreneurial attitude
2. Given the opportunity and resources, you would like to create a spin-off business.

20. For what reasons you have an entrepreneurial attitude?

Multiple choices possible:

- Capture a business opportunity by commercialising your research.
- Fleeing the daily routine of teaching and scientific research to an entrepreneurial adventure.
- Have a dual career perspective (academic-entrepreneur).

#### 1.3.1.6. Psychological factors of self-efficacy

Although the results of the previous studies on the effect of self-efficacy on entrepreneurial intention remain limited, we have chosen to mobilize this variable. We believe, as indicated in hypothesis 5, that SE may be strongly related to AEI. Thus the main items selected are:

21. To what extent are you able to?

*Please rate each proposal from 1 (totally unable) to 5 (totally able)*

- Recognize when an idea or research result is effective enough to carry out a successful entrepreneurial project.
- Identify potential sources of funding to invest in a new business. Have a dual career perspective (academic-entrepreneur).
- Ability to surround yourself with competent people (personal network) to accompany you and support you in formalising your project.

#### 1.3.1.7. Psychological constraints to business creation

The objective of this part was to identify the constraints to business creation and to measure its intensity on academic entrepreneurial intention. Thus the main items selected are:

22. What do you think of the following statements?

*Please rate each proposal from 1 (Totally disagree) to 5 (totally agree).*

- For a teacher/researcher, academic commitment is more important than an entrepreneurial career.
- Researchers have more difficulty in reconciling academic and entrepreneurial professional life (obstacles of time, energy, means...etc.).
- Researchers have a greater aversion to risk (risk of influencing their academic qualifications and titles if they fail).

#### 1.3.1.8. Identification sheet

It is more practical for identifying information to be left at the end of the questionnaire. The variables we have selected are essentially descriptive which serves the interest of carrying out socio-demographic analyses. This group contains age, gender, professional status and the scientific field of the participant.

<p>1. Your age (in years)?</p> <p><input type="radio"/> 23 – 28 years    <input type="radio"/> 29 – 34 years    <input type="radio"/> 25 – 40 years    <input type="radio"/> over 40 years</p> <p>2. Sex?</p> <p><input type="radio"/> Male    <input type="radio"/> Female</p> <p>3. What is your professional status in the university?</p> <p><input type="radio"/> Professor                      <input type="radio"/> Senior lecturer                      <input type="radio"/> Assistant lecturer</p> <p><input type="radio"/> Associate teacher              <input type="radio"/> PhD student</p> <p>4. Please indicate Your Scientific field?</p> <p><input type="radio"/> Economic, Management and Commercial Sciences</p> <p><input type="radio"/> Mathematics and Informatics                      <input type="radio"/> Law and Political Science</p> <p><input type="radio"/> Human and Social Sciences                      <input type="radio"/> Language and Literature</p>
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### 1.3.2. Precautions to be consider

Once the questionnaire was drafted, several precautions were taken to ensure its neutrality and thus ensure a collection of relevant and usable data. Thus Saleh (2010) highlights that: *“despite all the attention that the researcher pays to the construction of his questionnaire, only a pre-test step allows him to guarantee the drafting, or even the identification of all induced biases, and thus to reinforce the formulation of his questions and their ordering (Emin, 2003).”*<sup>1</sup>

Thus, we verified:

- The introductory page motivates potential respondents;
- The questions were well understood by the respondents in order to obtain a viable answer (vocabulary, statement of questions);
- Ensure that respondents are able to give an answer to all questions;
- The time required to answer the questionnaire;
- The general form of the document (readability);

The questions have been modified in a series of steps. The major changes were as follows:

- Some questions have been reformulated for better understanding and others deleted;
- The presentation and drafting of the items have been reviewed and corrected for greater simplicity and readability.

<sup>1</sup> SALEH (L), opcit, p.276.

### 1.3.3. Procedures for administering the questionnaire and collecting data

There are several types of administration for questionnaire surveys: face-to-face, telephone, electronic, etc. Generally, electronic surveys have advantages in terms of cost and time. In addition, the face-to-face survey (by the researcher) has emerged as a suitable means for our survey to "optimize" the return rate.

The questionnaires were distributed to 11 teachers face-to-face in my presence; and 60 questionnaires were distributed by electronic mails. The survey was conducted in the first three weeks on May; however the response rate was average depending on the teacher's and researcher's responses of their mails. In total we collected 53 fully usable questionnaires.

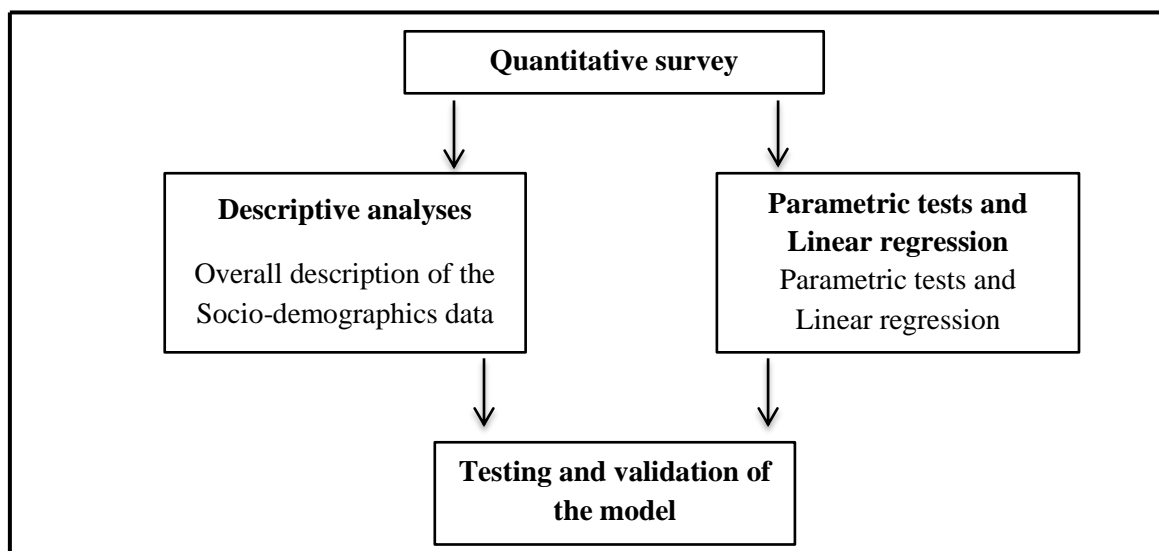
### 1.3.4. The questionnaire analysis and description of the sample

Before specifying the features of the data we collected by the questionnaire, we will present the procedure for processing the questionnaire.

#### 1.3.4.1. The questionnaire analysis

The statistical processing of the questionnaire requires coding on SPSS<sup>1</sup>, i.e. translating the answers to prepare them for computer processing. Coding allows the transformation of each variable to a symbol. The variables are nominal, numerical and ordinal. First, we will carry out a descriptive analysis. Then, we will submit the relationships formulated in our research hypotheses to parametric tests and linear regressions.

**Figure III-2:** The methodological approach to questionnaire analysis



Source: own conception

<sup>1</sup> Statistical Package for the social sciences (version 25.0).

### 1.3.4.2. General description of socio-demographic data

In this paragraph, we will present the overall description of socio-demographic data. Comparing the socio-demographic data from the selected samples will add significantly to the understanding of our research, since the objective is to explain and understand the formation of intention. Understanding the specificities of academics' can give a more global view of our sample.

#### a) Age of the respondents

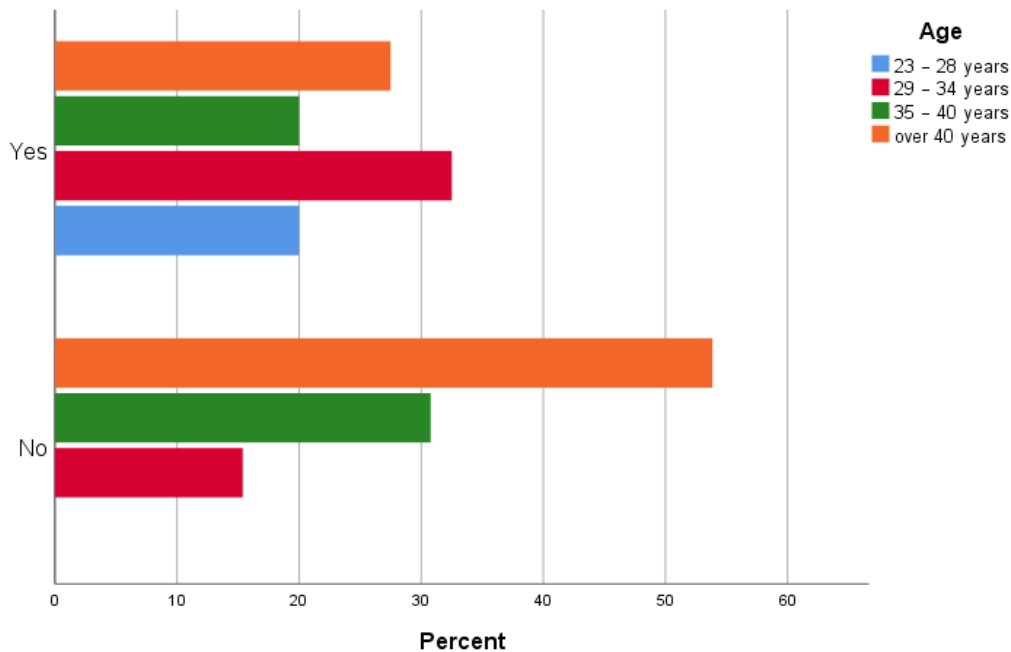
The age distribution of the sample shows that 34 % are over 40 years of age (15,1% from 23 to 28 years of age, 28,3% from 29 to 34 years of age and 22,6% from 35 to 40 years of age). Over a five-year horizon the time frame used to predict the entrepreneurial intention of the academics', the average age of the sample will be approximately 30.

**Tableau III-1: Age of the participants**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	23 – 28 years	8	15,1	15,1	15,1
	29 – 34 years	15	28,3	28,3	43,4
	35 – 40 years	12	22,6	22,6	66,0
	over 40 years	18	34,0	34,0	100,0
	Total	53	100,0	100,0	

Source: SPSS

Indeed, the association of age and entrepreneurial intention of the participants reveals that the percentage of the age group (from 29 – 34 years) is the highest for all participants who have answered that they do have an EI and none of them have answered no to this end. It also reveals that the percentage of the group age (over 40 years) is the highest for all respondents who do not have an EI, also we observed a slight decrease in participant's intentions whenever their age increases as shown in the figure III-3, in accordance with these findings we have questioned if there any relationship between age and AEI?. (We will discuss this assumption in the next section by adopting parametric tests).

**Figure III-3: Clustered Bar chart of participant's EI by their Age**

Source: SPSS

**b) Gender of the respondents**

The gender distribution of the sample shows that there is a slight equivalence between male and female who participated in the survey (47.2 % and 52.8% female). Research by Fernández-Pérez (V) et al <sup>1</sup> highlight that within general research into entrepreneurship, several studies have found gender to impact on the development of entrepreneurial intentions, In addition it has been reported that women not only view themselves as being less capable to become entrepreneurs but also perceive their environment as more difficult and less appropriate for entrepreneurial initiatives. Thus the association between gender and EI (Table III-2) shows that the percentage of women who have an EI ( 71,4%) is higher than those who answered No to the EI, ( only 28,6% from the population) which is approximately at the same range compared to male's intentions toward EI. (80% are in willing to start a new venture whereas only 20% who answered No to EI). Which leads us to question if there is a true relationship between gender and AEI?. (We will discuss this assumption in the next section by adopting parametric tests).

<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: "*Business social networks and academics' entrepreneurial intentions*", Op.cit, p.298.

**Table III-2: Cross-tab of participant’s gender and their EI**

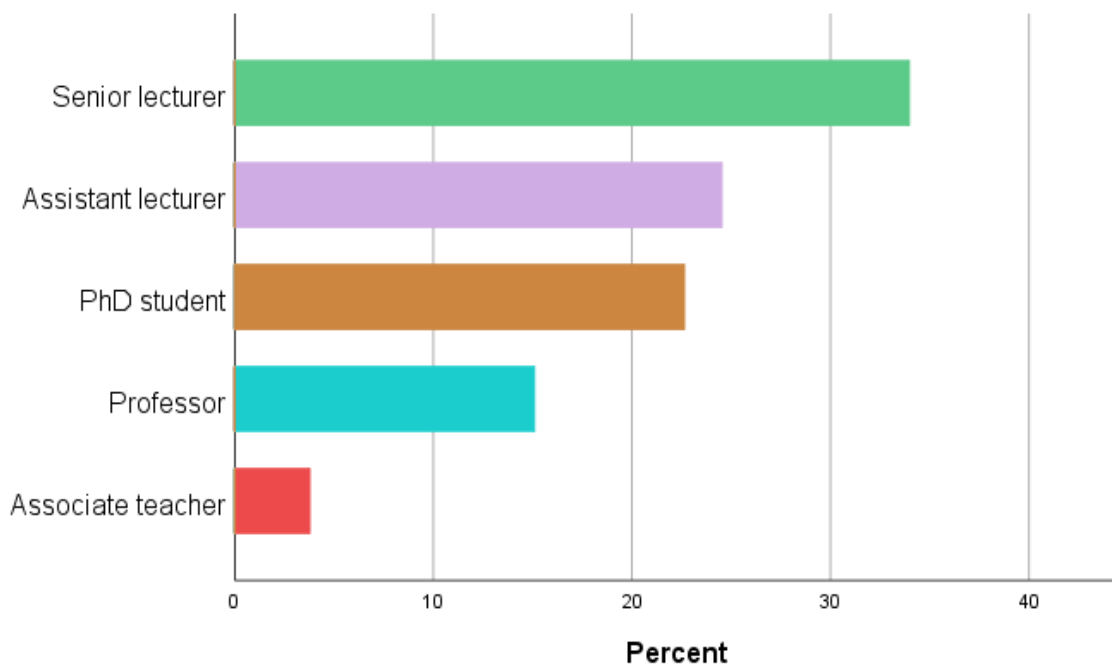
			Do you have an entrepreneurial intention?		Total
			No	Yes	
Gender	Male	Count	5	20	25
		% within Sex	20,0%	80,0%	100,0%
	Female	Count	8	20	28
		% within Sex	28,6%	71,4%	100,0%
Total		Count	13	40	53
		% within Sex	24,5%	75,5%	100,0%

Source: SPSS

**c) Status of the participants**

The academics’ status distribution of the sample shows that 34 % of the participants hold the status of a Senior lecturer, which represents the highest participation, followed by Assistant lecturer 24.5%, PhD students comes after with 22.6% and only 15.1% of the participants hold the title of a Professor, although the restrained number of professors at the university can be explain by the number of years necessary at the academic institution to win this title. Finely we notice a very small participation from Associate teacher with only 3.8%.

**Figure III-4: Bar chart of Academics’ status at the university**

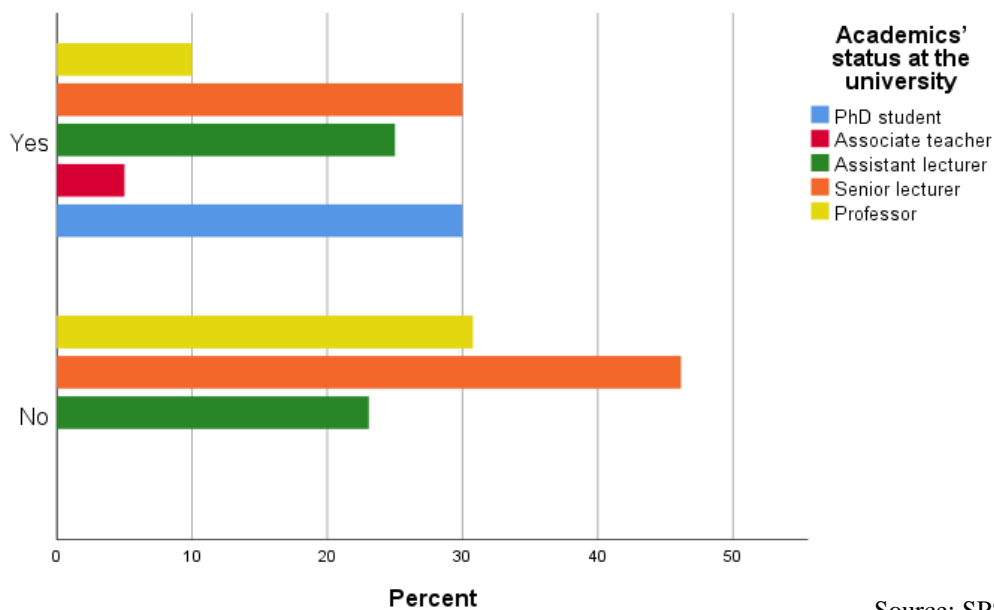


Source: SPSS

According to EMIN<sup>1</sup>, the factor that most influences the creation of spin-offs is the status and quality of academic researchers, which also influences the strength of entrepreneurial commitment (to create with or without leaving university). EMIN also highlight that young researchers (young doctors or researchers on short-term or occasional contracts), whose academic careers are not yet guaranteed, would thus have a greater incentive than statutory researchers to undertake (risk of unemployment, no statutory and regulatory constraints, fewer cultural constraints, a lower career perspective...etc.). This is also confirmed by Prodan and Drnovsek<sup>2</sup>, who state that academics' job stability and reputation normally depend on teaching and publications. Because entrepreneurship activity involves substantial inherent risk, an academic may jeopardize his or her career path by creating spin-offs and reducing other research responsibilities.

Indeed, In accordance with the results of EMIN, Prodan and Drnovsek, the intersection of Academics' status and the EI (Figure III-5) reveals that all of the PhD students had expressed their willingness to start a new venture; but only 50 % of Professors had stated their ambition to undertake. Although 66.7% of Senior lecturer had expressed their willingness to start a new venture, which leads to reconsider the previous assumption (we will discuss this assumption in the next section by adopting parametric tests).

**Figure III-5: Clustered Bar chart of participant's EI by their professional status**



Source: SPSS

<sup>1</sup> EMIN, (Sandrine): Op.cit, P.12.

<sup>2</sup> PRODAN (I) and DRNOVSEK (M): Op.cit, p.335.

#### d) The impact of previous professional experience

For the study of the impact of previous professional experience of the respondents to this survey, it is important to focus on two dimensions: previous professional experiences, previous entrepreneurial experiences.

- **The effect of working for a company**

For the effect of working for a company in our sample, up to 72.5% of the participants declared that they have worked in a company, and only 27.5% declared the opposite. This highlights a great significant on the level of their interaction with industry.

For further analysis, we asked the participants if this professional experience had an impact on their EI, the results are as followed in Table III-3. Out of a sample of 29 respondents, 48.3% of theme indicates that working for a company has a positive effect on their EI, 27.6% see that this implication is very positive, while 20.7% find them average. The rest of the sample (3.4%) think this experiences have a negative effect on their EI. (We have used the valid percentage to express the results because we have 11 missing responses – for those who answered that they have never worked for a company-). When we measured the mean score for all responses and by comparing it to the the Likert scale range<sup>1</sup>, we found that the average score (Mean= 4.00) is located in the interval (] 3.40 – 4.19]: strong description of the chosen item). Thus, we conclude that according to the participant's answers: there is a strong evidence of a positive relationship between academics' professional experiences and their EI.

**Table III-3: The influence of previous professional experiences on academic's EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	rather negative	1	2,5	3,4	3,4
	neither negative nor positive	6	15,0	20,7	24,1
	rather positive	14	35,0	48,3	72,4
	Very Positive	8	20,0	27,6	100,0
	Total	29	72,5	100,0	
Missing	System	11	27,5		
Total		40	100,0		

Source: SPSS

<sup>1</sup> The Likert scale we used is ranging from 1 to 5; with progression of 0.79 for the scale analysis: ([1- 1.79]: Very Poor description of the selected item.] 1.79 - 2.59]: Poor to average description.] 2, 6 - 3.39]: average description of the chosen item. ] 3.40 – 4.19]: strong description of the chosen item. ] 4.20- 5]: very strong description of the chosen item.

- **The effect of consulting activities**

According to EMIN<sup>1</sup>, consulting is often the first step towards more advanced forms of collaboration. Consulting is important for entrepreneurship for several reasons: it provides a direct means of establishing personal contacts and most importantly, it gradually facilitates participation in a new business. From this perspective, we asked our participants if they had participated in consulting activities. The results from our sample shows that the majority of the respondents declared that they have participated consulting activities (32.5% who sometimes have participated and 32.5% for those who have participated several times), but only 32.5% declared that they have ever participated. This highlights a great significant on the level of their interaction with industry.

**Table III-4: Respondents' consulting activities experiences**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	14	35,0	35,0	35,0
	Sometimes	13	32,5	32,5	67,5
	Several times	13	32,5	32,5	100,0
	Total	40	100,0	100,0	

Source: SPSS

To measure the degree of impact that this professional experience on participant’s EI, we asked the participants if there consulting activities had an impact on their EI, the results are as followed in Table III-5. Out of a sample of 26 respondents, 42.3% of them indicate that participating in consulting activities have a positive effect on their EI, 30.8% see that this implication is very positive, while 23.1% find them average. The rest of the sample (3.8%) think this experiences had a negative effect on their EI. (We have used the valid percentage to express the results because we have 14 missing responses – for those who answered that they have never participated in consulting activities-). When we measured the mean score for all responses and by comparing it to the the Likert scale range, we found that the average score (Mean= 4.00) is located in the last interval ([ 3.40 – 4.19]: strong description of the chosen item). Thus, we conclude that according to the participant’s answers: there is a strong evidence of a positive relationship between academics’ consulting activities and their EI.

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<sup>1</sup> EMIN, (Sandrine): Op.cit, P.12.

**Table III-5: The influence of consulting activities experiences on academic's EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	rather negative	1	2,5	3,8	3,8
	neither negative nor positive	6	15,0	23,1	26,9
	rather positive	11	27,5	42,3	69,2
	Very Positive	8	20,0	30,8	100,0
	Total	26	65,0	100,0	
Missing	System	14	35,0		
Total		40	100,0		

Source: SPSS

- **Prior entrepreneurial experiences**

To explain the teachers'/researcher's entrepreneurial socialization, it was essential to study their entrepreneurial experiences. To this end, 55.0% of all respondents said they had been personally involved in the creation of a university spin-off or start-up. Approximately, to these results, we have 45.0% of respondents who declared that they have never been involved in business creation. This result reflects that there is an acceptable awareness among academic teachers and researchers of entrepreneurship as a career.

**Table III-6: Respondents' previous entrepreneurial experience**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	22	55,0	55,0	55,0
	Yes	18	45,0	45,0	100,0
	Total	40	100,0	100,0	

Source: SPSS

According to Pablo et al<sup>1</sup>, entrepreneurship research highlights that prior entrepreneurial experience increases the probability of identification and exploitation of entrepreneurial opportunities since it helps to develop the skills necessary to undertake such functions. Thus, prior experience in identifying entrepreneurial opportunities is likely to increase a researcher's perception of the commercial potential of his/her current research activities. From this perspective and in order to measure the degree of impact that this professional experience on

<sup>1</sup> PABLO, (D) et al: *Academic entrepreneurship: what are the factors shaping the capacity of academic researchers to identify and exploit entrepreneurial opportunities?* DENMARK, June 17 - 19, 2009, p.06.

participant’s EI, we asked the participants if there implication in the creation of a university spin-off or start-up had an impact on their EI, the results are as followed in Table III-7. Out of a sample of 18 respondents, 44.4% of them indicate that participating in prior entrepreneurial activities have a very positive effect on their EI, 38.9% see that this implication is positive, while 11.1% find them average. The rest of the sample (5.6%) think this experiences have a negative effect on their EI. (We have used the valid percentage to express the results because we have 22 missing responses – for those who answered that they have never been participated in entrepreneurial activities-). When we measured the mean score for all responses and by comparing it to the the Likert scale range, we found that the average score (Mean= 4.22) is located in the last interval ([ 4.20- 5]: very strong description of the chosen litem.) Thus, we conclude that according to the participant’s answers: there is a very strong evidence of a positive relationship between academics’ consulting activities and their EI.

**Table III-7: The influence of respondents’ prior entrepreneurial experiences on their EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	rather negative	1	2,5	5,6	5,6
	neither negative nor positive	2	5,0	11,1	16,7
	rather positive	7	17,5	38,9	55,6
	Very Positive	8	20,0	44,4	100,0
	Total	18	45,0	100,0	
Missing	System	22	55,0		
Total		40	100,0		

Source: SPSS

**e) The effect of known and frequented environments**

This effect is the result of a socialization process carried out throughout the life of the potential entrepreneur. For EMIN<sup>1</sup>, this initial socialization refers to the multiple predispositions and experiences that precede the decision to become an entrepreneur.

- **The influence of Perceived role models**

In her studies, EMIN<sup>1</sup> point out that business creation is stimulated by the existence of other successful inventors-entrepreneurs. Seeing others start their own business and succeed

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<sup>1</sup> EMIN, (Sandrine): Op.cit, P.09.

encourages the potential entrepreneur to do the same. Therefore, the effect of models and examples of university spin-offs are a positive stimulus for business creation.

In line with these findings, we wanted to know if the survey participants had known entrepreneurs in their environment. The results show that 77.5% said they had known entrepreneurs in the area who has a great effect on their entrepreneurial intention.

**Table III-8: Exposure to entrepreneurial models**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	9	22,5	22,5	22,5
	Yes	31	77,5	77,5	100,0
	Total	40	100,0	100,0	

Source: SPSS

In order to measure the degree of the impact of exposure to entrepreneurial models on researcher’s EI, we asked the participants if there interaction with those role models had an impact on their EI, the results are as followed in Table III-9. Out of a sample of 31 respondents, 38.7% of them indicate that knowing these models and peers have a positive effect on their EI, 32.3% see it is very positive, while 29.0% find it average. The rest of the sample totally disagree that these models have a negative effect on their EI. (We have used the valid percentage to express the results because we have 9 missing responses – for those who answered that they have never known entrepreneurs in the area-). When we measured the mean score for all responses and by comparing it to the the Likert scale range, we found that the average score (Mean= 4.03) is located in the last interval ([ 3.40 – 4.19]: strong description of the chosen item). Thus, we conclude that according to the participant’s answers: there is a strong evidence of a positive relationship between academics’ exposer to role models and their EI.

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**Table III-9: The impact of exposure to entrepreneurial models on researcher's EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	neither negative nor positive	9	22,5	29,0	29,0
	rather positive	12	30,0	38,7	67,7
	Very Positive	10	25,0	32,3	100,0
	Total	31	77,5	100,0	
Missing	System	9	22,5		
Total		40	100,0		

Source: SPSS

- **Academic's perceived support from close relations**

According to Fernández-Pérez (V) et al<sup>1</sup>, individuals learn values, attitudes, information and skills from their family members, close friends and colleagues; hence, they may play a key role in socialisation and predisposition toward entrepreneurship. In addition, close environment stimulates positive feelings toward entrepreneurship and encourages a positive EI. From this perspective and in order to measure the degree of impact of perceived support and encouragement from close ones ( family, friends and colleagues) on participant's EI, we asked the participants if they decided to set up an entrepreneurial project, would they expect support and encouragement from their close relations, the results were as followed in Table III-10. Out of a sample of 40 respondents, 70.0% of them indicate that they expect a positive support and engorgement, while 20.0% expect an average support. The rest of the samples (10%) expect null support and encouragement from close relations. When we measured the mean score for all responses and by comparing it to the the Likert scale range, we found that the average score (Mean= 3.88) is located in the interval (] 3.40 – 4.19]: strong description of the chosen item). Thus, we conclude that according to the participant's answers: there is a strong evidence of a positive relationship between academics' perceived support from close relations and their EI.

<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: “*Business social networks and academics' entrepreneurial intentions*”: Op.cit, p.297.

**Table III-10: The impact of researcher's personal networks on their EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Totally disagree	3	7,5	7,5	7,5
	rather disagree	1	2,5	2,5	10,0
	neither agree nor disagree	8	20,0	20,0	30,0
	rather agree	14	35,0	35,0	65,0
	totally agree	14	35,0	35,0	100,0
	Total	40	100,0	100,0	

Source: SPSS

**f) The influence of professional forums**

For Fernández-Pérez et al<sup>1</sup>, Attendance at forums and seminars contributes to information sharing and continuing education with members who share common vocabularies and ways of thinking. Thus, the “entrepreneurial sense” and the link to private companies fostered by many universities to close the gap between science and practice are encouraged in this kind of event, where entrepreneurial attitudes and behaviour can be interchanged and reinforced.

For a better understanding of the respondents' socialization, it was essential to know if they have attended to conferences, seminars dealing with entrepreneurship issues in the last 5. Our result confirms that 90% of them indicate that had participated in those professional forums, while only 10% declared the opposite. This highlights a great significant on the level of their interaction and attention to entrepreneurial activities.

To measure the degree of impact that this professional forums on participant's EI, we asked the participants if there attendance had an impact on their EI, the results are as followed in Table III-11. Out of a sample of 36 respondents, 38.9% of them indicate that participating this professional forums have an average effect on their EI, 27.8% see that there participation is very positive, while 30.6% find them quit positive. The rest of the sample (2.8%) think this experiences have a negative effect on their EI. (We have used the valid percentage to express the results because we have 4 missing responses – for those who answered that they have never participated in these forums-). When we measured the mean score for all responses and

<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: “Professional and personal social networks: A bridge to entrepreneurship for academics?”, Op.cit, p.04.

by comparing it to the the Likert scale range, we found that the average score (Mean= 3.81) is located in the interval (] 3.40 – 4.19]: strong description of the chosen item). Thus, we conclude that according to the participant’s answers: there is a strong evidence of a positive relationship between these professional forums and their EI.

**Table III-11: The impact of professional forums on researcher’s EI**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very negative	1	2,5	2,8	2,8
	neither negative nor positive	14	35,0	38,9	41,7
	rather positive	11	27,5	30,6	72,2
	Very Positive	10	25,0	27,8	100,0
	Total	36	90,0	100,0	
Missing	System	4	10,0		
Total		40	100,0		

Source: SPSS

**g) Factors inhibiting entrepreneurial decision making**

According to EMIN<sup>1</sup>, In Ajzen's (1991) theory of planned behaviour, perceived behavioural control measures the ease or difficulty perceived by the future entrepreneur to start a business, whether this perception is the result of past experience (personal or that of friends) or anticipated obstacles (lack or presence of necessary resources and opportunities). From this perspective, the feasibility of a business is conditioned by the financial resources, theoretical and empirical knowledge and personal and institutional relationships that the candidate entrepreneur will be in able to mobilize to carry out its project successfully; some of these resources belong to the individual: his or her skills, knowledge, networks and financial availability. Others are in his personal and professional environment.

From these findings and in order to delineate the obstacles that affect negatively our respondents’ willingness to start a new venture and commercialize their researches (Out of a sample of 53 respondents, 13 of them indicates that they do not have entrepreneurial intentions). To this matter we have mobilised several items (see table III-12) to delineate whether these negatives perspectives toward academic entrepreneurship is due to their

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<sup>1</sup> EMIN, (Sandrine) : Op.cit, P.14.

previous professional or entrepreneurial experiences, attitudes, lack of confidence or due to environmental conditions...etc.

**Table III-12: Factors inhibiting researcher’s entrepreneurial decision making**

<b>Variables</b>	<b>Obstacles</b>
Academic’s EI	1. The lack of commercial application possibilities for your research is the major constraint on your entrepreneurial intention.
Previous professional experiences	2. Your professional life (working in a company, involvement in expertise and consulting activities, etc.) has a negative impact on your entrepreneurial intention
Previous entrepreneurial experiences	3. You have a negative entrepreneurial experience that curbs your desires to another entrepreneurial adventure.
	4. One of the closest relations (families, colleagues, etc.) has a negative entrepreneurial experience that has negatively influenced your entrepreneurial intention.
Attitudes	5. You don't have an entrepreneurial attitude.
	6. For a teacher/researcher, academic commitment is more important than an entrepreneurial career.
	7. Researchers have more difficulty in reconciling academic and entrepreneurial professional life (obstacles of time, energy, means...etc.).
	8. Researchers have a greater aversion to risk (risk of influencing their academic qualifications and titles if they fail).
Self-efficacy	9. The commercialisation of your research requires knowledge (administrative, legal, managerial... etc.) that exceeds your professional skills.
Environmental conditions	10. In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment; teachers and entrepreneurs at the same time.
	11. Higher education institutions are not interested in spending time and money to help researchers commercialise their research?

*Source: Own conception*

To measure the degree of impact of these obstacles, we asked the participants which ones of this inhibitor factors have the greatest impact on their EI, the results are presented in tables below followed by the subsequent discussion.

**Table III-13: Descriptive statistics of factors inhibiting researcher's entrepreneurial decision making**

Variables	Constrains	Percentages					Mean
		(1)	(2)	(3)	(4)	(5)	
<b>Env-cond</b>	constrains 10	00	00	7.7	69.2	23.1	4.15
<b>Attitudes</b>	Constrains 07	00	23.1	00	30.8	46.2	4.00
<b>Attitudes</b>	constrains 05	7.7	7.7	7.7	38.5	38.5	3.92
<b>Attitudes</b>	constrains 06	15.4	7.7	00	38.5	38.5	3.77
<b>Env-cond</b>	constrains 11	23.1	7.7	23.1	30.8	15.4	3.38
<b>Prof-exper</b>	constrains 02	7.7	23.1	15.4	38.5	15.4	3.31
<b>SE</b>	constrains 09	7.7	23.1	30.8	30.8	7.7	3.08
<b>Attitudes</b>	constrains 08	7.7	46.2	7.7	15.4	23.1	3.00
<b>AEI</b>	constrains 01	30.8	23.1	15.4	30.8	00	2.46
<b>Entrep-exper</b>	constrains 03	46.2	15.4	30.8	00	7.7	2.08
<b>Entrep-exper</b>	constrains 04	69.2	15.4	00	7.7	7.7	1.69

Own conception from SPSS results

As it is clear from Table III-13, there is a significant deviation between means of each variable. We ranked the obstacles based on their mean score from the highest to the lowest in order to specify which factors have the major negative effect on the AEI. The results aggregate three main groups of constrains: the first group with a very strong influence on AEI is represented by two major factors: academic's surrounding environment and their attitudes, while the second group of inhibitors is represented by their professional experiences and self-efficacy, with an average impact on their EI. Finally, the third group is reflected by academic's prior entrepreneurial experiences which have nearly no effect on their EI.

Therefore, these findings confirm the results of EMIN, in which she highlight that these main obstacles or constraints to the creation of a company by a researcher are related to the existing academic culture, legal difficulties (university rules and industrial property) and the

difficulty of obtaining financial funds...etc. She also states that researcher's lack of preparation in the administrative and legal fields (company set-up, industrial property), financial and accounting, management, human relations, marketing and commerce may affect negatively their EI.

## **Section 2: model analysis and results**

In this section, we will present the homogeneity tests, and we will test the hypotheses resulting from our research model. First, we will perform factorial analyses and Cronbach alpha tests. This will allow us to move on to the aggregation and filtering of the items related to the scales of measurement of the questionnaire, then, we will test the relationships formulated in our research hypotheses to determine, if they exist, the nature and significance of the determinants of academic's entrepreneurial intention. Finally, this analysis will allow us to discuss the results of this study in relation to the selected model.

### **2.1. Analysis of the homogeneity of scales**

#### **2.1.1. Validation of scales**

According to Saleh<sup>1</sup>, the most traditional process for the validation of measurement scales remains the one recommended by Churchill (1979). The process is restored in several stages, which are generally grouped into two essential phases: the design phase and the validation phase. The first deals with the development of a set of items intended to measure a theoretical construct, as well as the purification of the selected list based on a first empirical study. This approach therefore makes it possible to select the best items. The second validation phase aims to verify by measurements, in terms of reliability and viability,

The validation of measurement scales is carried out through factor analysis. Reliability, on the other hand, is assessed by the Cronbach coefficient ( $\alpha$ ). We will use both tools simultaneously to study the items used to measure the different variables of our study model.

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<sup>1</sup> SALEH (L), opcit, p.293.

### 2.1.2. Dimension reduction

To present the results of the scale validation in this research, the procedure followed concerns the study of dimensionality by factor analysis, and the study of reliability based on the Cronbach alpha study ( $\alpha$ ).

According to Saleh<sup>1</sup>, Principal Component Analysis (PCA) is a method for analysing the relationships between quantitative data. It is the most widely used method among descriptive methods for the purification and validation of scales. It only analyses the linear relationships that may exist between the variables. The PCA is conducted on centred-reduced data, the variables then have the same variability and have the same influence in calculating the distance between individuals. It reveals a factor structure through which the identified component(s) is (are) clearly linked to items. If the variable is unidimensional, then all the items refer to the same factor (i.e. the same factor axis), and the scale forming these items then measures only one dimension of the variable studied. Otherwise, the factor structure is two or more factors, and the variable is therefore considered bidimensional or multidimensional.

According to Saleh<sup>2</sup>, several theoretical criteria have been proposed to choose the number of axes to be retained and the items to be deleted. For the elimination of items, there are criteria based on the degree of contribution to factor axes.

- It is prescribed to delete items whose factor contributions are greater than 0.30 on several factors, or having no contribution reaching this score on one of the main factors retained.
- It is also recommended to eliminate items that have no contribution greater than or equal to 0.50 on the same factors.

For the number of axes to be retained, often three criteria emerge:

- a) The kaiser criterion: we retain the axes whose eigenvalues are greater than 1;
- b) The eigenvalue diagram: the presence of a “curve” in the diagram makes it possible to determine the number of axes to be studied;
- c) The percentage of variance explained: the number of axes selected must explain a percentage of total variance at least equal to 50%.

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<sup>1</sup> Ibid., p.295.

<sup>2</sup> Ibid., p.295.

More generally, we will retain the axes that we know how to interpret.

For the elimination of items with a factor contribution of less than 0.30, we performed rotations of the orthogonal axes of the initial PCA. The goal is to adjust the proposed structure by increasing the value of the correlation coefficients of some items with the new representation axes. Several rotation methods are available (orthogonal or oblique). We have chosen the Varimax rotation<sup>1</sup>. The objective of factor analysis is to reduce the available information to a limited number of variables by rotating the factors so that the items are saturated on as few factors as possible.

In addition, for the acceptance threshold of the Cronbach coefficient<sup>2</sup>, in view of the exploratory nature of our research, we have adopted the value of 0.60 as the minimum significance threshold, a threshold recommended by Evrard et al., (1997), Igalens and Roussel (1998).<sup>3</sup> When the  $\alpha$  of a scale is below the threshold selected, we verified the contribution of each item to the total score of the scale. Thus, some items may be deleted if their elimination contributes to improving the overall consistency of the scale. (We conducted the internal consistency test to further develop the PCA results. The overall  $\alpha$  is 0.920, which is well above the standard of 0.60. The scale is therefore internally consistent. Thus, we retained all the items to continue the factor analysis.)

We will apply the homogeneity tests to the data collected in our research sample. The results of the analysis will be presented according to the main variables selected in our research model.

#### 2.1.2.1. Self-efficacy

The measurement of self-efficacy required the use of two items. The latter were confronted with an internal consistency analysis. The results reveal a satisfactory Cronbach coefficient of 0,756. We continued the factor analysis. They all have a contribution coefficient

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<sup>1</sup> Varimax rotation (also called Kaiser-Varimax rotation) maximises the sum of the variance of the squared loadings, where 'loadings' means correlations between variables and factors. This usually results in high factor loadings for a smaller number of variables and low factor loadings for the rest. In simple terms, the result is a small number of important variables are highlighted, which makes it easier to interpret your results.

<sup>2</sup> Cronbach's alpha coefficient, sometimes referred to simply as the coefficient  $\alpha$ , is a statistic used in psychometrics to measure the internal consistency (or reliability) of questions asked during a test (answers to questions on the same subject must be correlated). Its value is less than or equal to 1, being generally considered as "acceptable" from 0.71.

<sup>3</sup> SALEH (L), opcit, p.296.

greater than 0.890. In addition, the items represent 77.66% of the variance of the information. We thus check that the items are grouped together according to the dimension they are supposed to represent.

**Table III-14: PCA of self-efficacy**

<b>Component 1</b>	
Recognize when an idea or research result is effective enough to carry out a successful entrepreneurial project.	,894
Identify potential sources of funding to invest in a new business.	,894
<b>Eigenvalue</b>	1,553
<b>% of the accounted variance</b>	77,660

Source : SPSS

**2.1.2.2. Attitude**

Of the three items selected for the test on this scale, one item was removed due to his weak communities. For the remaining items, the internal consistency characteristics show a good alpha score (0.702); the scale is therefore reliable. The rest of the items have a contribution coefficient greater than 0.880. In addition, the items represent 74.11% of the variance of the information. We thus check that the items are grouped together according to

**Table III-15: PCA of Attitude**

<b>Component 1</b>	
You have an entrepreneurial attitude	,888
Given the opportunity and resources, you would like to create a spin-off business.	,888
<b>Eigenvalue</b>	1,482
<b>% of the accounted variance</b>	74,107

Source : SPSS

**2.1.2.3. Environmental conditions**

The variable "environmental conditions" was operationalized by 4 items. The results reveal a satisfactory Cronbach coefficient of 0.875. We continued the factor analysis. They all have a contribution coefficient greater than 0.780. In addition, the items represent 73.11% of the variance of the information. We thus check that the items are grouped together according to the dimension they are supposed to represent.

**Table II-16:** PCA of Environmental conditions

	<b>Component 1</b>
There is a lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups	,885
It is difficult for a researcher to find investors to commercialize his research.	,882
Higher education institutions are not interested in spending time and money to help researchers commercialise their research?	,866
In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment; teachers and entrepreneurs at the same time.	,783
<b>Eigenvalue</b>	2,924
<b>% of the accounted variance</b>	73,109

Source : SPSS

**2.1.2.4. Personal social networks**

We have designed a 2 item multiple scale to measure this variable, we conduct reliability tests to determine their homogeneity. The internal consistency characteristics show a satisfactory alpha score at 0.572. We are continuing the analysis.

The scale in the table below is intended to gather information about the effect of those around the academic researcher when starting a business. The dimensionality test performed on the sample indicates that items measuring the personal social networks are related to a single factor. They all contribute more than 0.849. In addition, the items represent 72.13% of the variance of the information. The scale thus constituted is unidimensional.

**Table III-17:** PCA of Personal social networks

	<b>Component 1</b>
If you decide to set up an entrepreneurial project, would you expect support and encouragement from your close relations (family, friends, and colleagues)?	,849
What is the impact of exposure to these entrepreneurial models on your entrepreneurial intention?	,849
<b>Eigenvalue</b>	1,443
<b>% of the accounted variance</b>	72,132

Source : SPSS

#### 2.1.2.5. Professional social networks

For the study of the motivation scale, we mobilized 9 items. A first Cronbach coefficient gives us a satisfactory result of 0.832. The results are satisfactory, so we continued the factor analysis.

The first PCA established on all items updates mixed results. The share of each variable on the different items is not clear: for example, professional networks related to the effect of colleagues in the professional forums, have a contribution of more than 0.3 (0.881; 0.319) on both component 2 and 3. Thus, we preceded a rotation of the axes. This operation made it possible to find a more appropriate structure. After the rotation, we have found significant areas of focus in three components. The interpretation of the first axis refers to academic's professional experiences which are more closely linked as such (prior professional experience in a company or participating in consulting activities), while the second axis involves the attendance to professional forums, the third component holds enough information about academic's prior entrepreneurial experiences. These results work well with our findings in chapter II.

**Table III-18:** PCA Professional social networks after rotation

	<b>Component 1</b>	<b>Component 2</b>	<b>Component 3</b>
Your work in a company would help you identify opportunities for commercial application of your research?	,987	-,084	-,044
Your consulting activities would help you identify opportunities for the commercial application of your research?	,990	-,054	,039
Your consulting activities would help you to strengthen your professional network.	,982	-,007	-,024
Your work in a company will help you strengthen your professional network	,930	,236	,099
your contacts or discussions with your colleagues at these events could provide you with useful information to commercialise your research	,093	,920	,209
What is the impact of these events on your entrepreneurial intention?	-,067	,880	-,290
Have you been personally involved in the creation of a university spin-off or start-up in the last 10 years?	,010	-,034	,981
<b>Eigenvalue</b>	3,796	1,688	1,104
<b>% of the accounted variance</b>	54,226	24,110	15,766

Source : SPSS

This first analysis, based on homogeneity criteria and based on dimensionality and internal consistency methods, allowed the data to be purified and the variables to be structured. Thus, we condensed the initially adopted variables into a reduced number of composite variables so that we could then perform hypothesis validation tests.

## **2.2. Parametric tests and linear regressions**

The analysis conducted in this research is based on two aspects. In the first, it is a question of checking the general assumption mobilised in the second chapter (academics' entrepreneurial intention is affected by their age, gender and professional status). Parametric tests will therefore be applied (Chi Square Test, Phi and Cramer's V).

In a second step, we will examine the nature of the relationships that characterize the variables selected. The aim is to study the quality of cause-and-effect relationships between explained variables and explanatory variables formulated in the research hypotheses. In this sense, the linear regression method will be used. The examination of the validity of the relationships is therefore based on the assessment of the practical significance through the value of  $R^2$  which corresponds to the part of the variance of the variable explained by the explanatory variables.

### 2.2.1. Parametric tests

In this paragraph, we will focus on verifying the assumptions regarding the change of AEI according to the age, gender and professional status. In this phase of the analysis, the following assumptions must be tested with the academic researchers:

**Assumption 1:** academic's age is negatively related to academic-entrepreneurial intentions.

**Assumption 2:** academic's-entrepreneurial intentions differ between male and female academics.

**Assumption 3:** academic's professional status is negatively related to academic-entrepreneurial intentions.

At this level we have chosen to adopt a parametric analysis – the chi-square test to be exact- The chi-square test for independence, also called Pearson's chi-square test or the chi-square test of association, is used to discover if there is a relationship between two categorical variables, although the effect size in this case is measured by Cramer's V, which is applied to tables where at least one variable had only two categories; for example: male and female. The ordinal and nominal nature of the variables concerned guided us towards the implementation of this parametric test; since it is perfectly adapted to the case of an explanatory variable with two modalities. Indeed, this type of analysis makes it possible to judge the effect of a qualitative variable with two or more modalities on a quantitative variable.

In order to test the first assumption, concerning the variability of intention according to the age of the respondents, Therefore, we aimed to confirm or infirm this assumption by adopting a Chi-Square Tests to measure the significant of the relationship. The results of the Chi-Square Tests (see appendix III), indicates a significant influence between the participant's age and their entrepreneurial intention. The asymptotic significance (2-sided) at the threshold  $\alpha = 0.05$ , for 3 degree of freedom, is equal to 0.047 which is nearly approximant to  $\alpha = 5\%$ ,

(we used the Likelihood Ratio to measure the significant level because the assumption of the table have been violated). However, the effect size of this relationship is measured by Cramer's V (small effect= 0.10, medium effect= 0.30 and large effect= 0.50), Thus, in this case the Cramer's V was greater than 0.30, which means that there is a significant association between academics' age and their EI, with a medium effect of the first on the later.

For the second assumption, we've conducted the same test to measure the association between academic's gender and their EI. Therefore, we aimed to confirm or infirm this assumption by adopting a Chi-Square Tests to measure the significant of the relationship. The results of the Chi-Square Tests (see appendix III), indicates a non-significant influence between the participant's gender and the entrepreneurial intention. The asymptotic significance (2-sided) at the threshold  $\alpha = 0.05$ , for 1 degree of freedom, is equal to 0.469, which is highly important than  $\alpha = 5\%$ , we can conclude that there is no significant association between gender and EI.

The third assumption was concerning the variability of intention according to the professional status of the respondents, Therefore, we aimed to confirm or infirm this assumption by adopting a Chi-Square Tests to measure the significant of the relationship. The results of the Chi-Square Tests (see appendix III), indicates a significant association between the participant's academic status and the entrepreneurial intention. The asymptotic significance (2-sided) at the threshold  $\alpha = 0.05$ , for 4 degree of freedom, is equal to 0.027 which is less than  $\alpha = 5\%$ , (we used the Likelihood Ratio to measure the significant level because the assumption of the table have been violated). However, the effect size of this relationship is measured by Cramer's V (small effect= 0.10, medium effect= 0.30 and large effect= 0.50), Thus, in this case the Cramer's V was greater than 0.30, which means that there is a significant association between academics' professional status and their entrepreneurial intentions, with a medium effect of the first on the later.

Parametric tests indicated that intention changes depending on academic's age, gender and professional status. With this in mind, the next phase will present the intention analysis based on the results of the linear regression, by which we will validate our research model.

### 2.2.2. Linear regressions

In this paragraph we will focus on studying the relationships between the variables in our study model. More specifically, it is a question of verifying the hypotheses used in Chapter II, and we will recall the main hypotheses below:

**Hypothesis 1:** academic's professional networks are significantly related to their EI.

**Hypothesis 2:** academic's personal social networks are significantly related to their EI.

**Hypothesis 3:** the environmental conditions influence negatively academic's entrepreneurial intentions.

**Hypothesis 4:** academic's entrepreneurial attitudes has a positive effect on their EI

**Hypothesis 5:** academic's self-efficacy has a positive effect on their EI.

Hypothesis testing uses explanatory methods, including linear regression. Based on the linear adjustment, this method allows to verify causal relationships (explanatory variable) to effect (explained variable) between two metric variables.

The linear regression test is interpreted at three levels: (1) the intensity of the relationship between the two variables, which is calculated using the correlation coefficient  $R$ , (2) the significance of the correlation and the quality of the fit of the model, which is assessed through the  $R^2$  coefficient, as well as the Fisher  $F$  test, and finally, (3) the examination of the residues to reflect the precision of the model. It should be noted that the linear determination coefficient  $R^2$  is the main indicator of the quality of the regression. In other words, it synthesizes the ability of the regression line to represent the entire point cloud of observed values. This assessment should be as high as possible. However, the interpretation of  $R^2$  must also take into account the number of explanatory variables and observations assimilated by the model. For this purpose, the adjusted  $R^2$  allows a more realistic assessment to be made the results of the model<sup>1</sup>.

#### 2.2.2.1. The influence of professional social network on AEI

In order to test the association between academic's professional social networks on his entrepreneurial intentions, we used simple and multiple regression tests on each factors which represents this variable. Thus we've measured three main factors:

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<sup>1</sup> SALEH (L), opcit, p310.

**a) Previous professional experiences**

The first relationship we wanted to verify is logically hypothesis H1a, relating to the influence that prior professional experiences (working for a company, consulting activities...) can have on AEI. The intensity of this relationship is reflected in a coefficient (of correlation R) whose value is 57.4%. The adjusted R<sup>2</sup> has an acceptable score of 0.330. To assess the quality of adjustment of this regression, the (FisherSnedecor) F test is used. The question is whether, for the risk  $\alpha$  considered; the multiple R<sup>2</sup> is significantly different from 0 in the sample. The critical value of F, at the threshold  $\alpha = 0.05$  for 1 and 32 degrees of freedom, is equal to 4.171. Since the calculated F (15,747, sig. = 0.000) is significantly higher, we can conclude that the quality of adjustment provided by the regression is significant. There is therefore a significant dependence between having previous professional experiences on the entrepreneurial intention. In this sense, hypothesis 1a: academic's prior professional experiences are directly and significantly related to their EI is validated.

**Table III-19: Results of the regression of prior professional experiences**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	12,853	1	12,853	15,747	,000
<b>Residual</b>	26,118	32	,816		
<b>Total</b>	38,971	33			
<b>R<sup>2</sup></b>	,330				
<b>Adjusted R<sup>2</sup></b>	,309				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		3,206	,003		
<b>Previous professional experiences</b>	,574	3,968	,000		

Source : SPSS

**b) Exposure to prior entrepreneurial experiences**

The second relationship we studied concerns the influence of the exposure to prior entrepreneurial experiences on AEI. The results indicates that the quality of the adjustment obtained by this linear relationship is not acceptable and is evaluated at -0.047 for a sig. = 0.632. Indeed, the observed value of F is lower than the critical value (F= 4.494 at the threshold  $\alpha = 0.05$ , for 1 and 16 degrees of freedom). So academic's prior entrepreneurial experiences have no influence on his EI. In this sense, hypothesis 1b: academic's prior entrepreneurial experiences are directly and significantly related to their EI is rejected.

**Table III-20: Results of the regression of prior entrepreneurial experiences**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	,340	1	,340	,239	,632
<b>Residual</b>	22,771	16	1,423		
<b>Total</b>	23,111	17			
<b>R<sup>2</sup></b>	,015				
<b>Adjusted R<sup>2</sup></b>	-,047				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		3,141	,006		
<b>Exposure to prior entrepreneurial experiences</b>	-,121	-,489	,632		

Source : SPSS

**c) Experience in professional forums**

The third relationship we studied concerns the influence of the professional forums and seminars on AEI. The results indicates that the quality of the adjustment obtained by this linear relationship is not acceptable and is evaluated at -0.008 for a sig. = 0.404. Indeed, the observed value of F (F=0.713) is lower than the critical value (F= 4.171 at the threshold  $\alpha = 0.05$ , for 1 and 34 degrees of freedom). So academic's experiences in professional forums have no influence on his EI. In this sense, hypothesis 1c: academic's experience in professional forums is directly and significantly related to their entrepreneurial intentions, is rejected.

**Table III-21: Results of the regression of experience in professional forums**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	,800	1	,800	,713	,404
<b>Residual</b>	38,172	34	1,123		
<b>Total</b>	38,972	35			
<b>R<sup>2</sup></b>	,021				
<b>Adjusted R<sup>2</sup></b>	-,008				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		4,064	,000		
<b>Experience in professional forums</b>	,143	,844	,404		

Source : SPSS

In accordance with all these results, we conclude that the hypothesis 1: academic’s professional social networks are directly and significantly related to AEI is “partially validated”.

**2.2.2.2. The influence of personal social networks on AEI**

In order to test the relationships of variables that determine or represents the core of academic’s professional network, we used simple regression tests.

**a) Perceived personal support**

The first relationship we studied concerns the influence of the close relations (family, friends, colleagues...) on AEI. The results indicates that the quality of the adjustment obtained by this linear relationship is not acceptable and is evaluated at -0.005 for a sig. = 0.376. Indeed, the observed value of F=0.803 is lower than the critical value (F= 4.171 at the threshold  $\alpha = 0.05$ , for 1 and 37 degrees of freedom). So academic’s perceived support from his close relations have no influence on his EI. In this sense, hypothesis 2a: academic’s perceived personal support is directly and significantly related to EI is rejected.

**Table III-22: Results of the regression of perceived personal support**

<b>Variance analysis</b>					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	,772	1	,772	,803	,376
<b>Residual</b>	35,587	37	,962		
<b>Total</b>	36,359	38			
<b>R<sup>2</sup></b>	,021				
<b>Adjusted R<sup>2</sup></b>	-,005				
<b>Coefficients analysis</b>					
	Beta	t value	Sig.		
<b>(Constant)</b>		8,395	,000		
<b>Perceived personal support</b>	-,146	-,896	,376		

Source : SPSS

**b) Perceived role models**

The second relationship we wanted to verify is logically hypothesis H2b, relating to the influence that role models and peers can have on AEI. The results show a positive correlation within the sample, the R<sup>2</sup> score is 0,149. The quality of the adjustment obtained by this linear relationship, evaluated at 0,120 for a sig. = 0.032, is significant. The critical value of F (4.183 at the  $\alpha$  threshold = 0.05, for 1 and 29 degrees of freedom) is lower than the observed value,

so we may conclude that role models and peers influence his EI. In this sense, hypothesis 2b: the extent of perceived role models is positively related to the intensity of academic-entrepreneurial intentions is “accepted”.

**Table III-23: Results of the regression of perceived personal support**

<b>Variance analysis</b>					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	5,171	1	5,171	5,076	,032
<b>Residual</b>	29,539	29	1,019		
<b>Total</b>	34,710	30			
<b>R<sup>2</sup></b>	,149				
<b>Adjusted R<sup>2</sup></b>	,120				
<b>Coefficients analysis</b>					
	Beta	t value	Sig.		
<b>(Constant)</b>		2,092	,045		
<b>Perceived role models</b>	,386	2,253	,032		

Source : SPSS

In accordance with all these results, we conclude that the global hypothesis 2: academic’s personal social networks are directly and significantly related to AEI is “partially validated”.

**2.2.2.3. The influence of environmental conditions on AEI**

We want to test here the validity of the third hypothesis: environmental conditions influence negatively academic's entrepreneurial intentions, by conducting simple regression tests on each factor or item which determine or represents the core of these environmental conditions.

**a) The influence of university’s insufficient support on AEI**

The first relationship we wanted to verify is logically hypothesis H3a, relating to the influence of university’s insufficient support on AEI. The regression analysis presented in the following table shows satisfactory correlation and linear determination coefficients (R= 45.2% and R<sup>2</sup>= 20.4%). In addition, the observed coefficient F (9.765; sig. =.003) is greater than the F calculated for 1 and 38 degrees of freedom (F = 4.171). As a result, hypothesis 3a: universities’ insufficient support effect negatively on academic’s behaviour toward entrepreneurship is not rejected.

**Table III-24: Results of the regression of perceived support of university**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	8,336	1	8,336	9,765	,003
<b>Residual</b>	32,439	38	,854		
<b>Total</b>	40,775	39			
<b>R<sup>2</sup></b>	,204				
<b>Adjusted R<sup>2</sup></b>	,184				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		5,258	,000		
<b>Perceived support of university</b>	,452	3,125	,003		

Source : SPSS

**b) The influence of government's insufficient support on AEI**

The second relationship we wanted to verify is H3b, relating to the negative influences that government's laws and regulations can have on AEI. The results show a positive correlation within the sample, the intensity of this relationship is highly estimated at 57.3% (R). The proportion of the variance is equal to 31.1% (The quality of the adjustment of the relationship obtained by the multiple regression is therefore acceptable and the relationship is significant. The calculated value of  $F = 18.609$  are higher than the critical value 4.171, at the threshold  $\alpha = 0.05$ , for 1 and 38 degrees of freedom. In this sense, hypothesis 3b: government's insufficient support effect negatively on academic's behaviour toward entrepreneurship is validated.

**Table III-25: Results of the regression of perceived support of government**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	13,404	1	13,404	18,609	,000
<b>Residual</b>	27,371	38	,720		
<b>Total</b>	40,775	39			
<b>R<sup>2</sup></b>	,329				
<b>Adjusted R<sup>2</sup></b>	,311				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		5,349	,000		
<b>Perceived support of government</b>	,573	4,314	,000		

Source : SPSS

**c) The influence of industry’s insufficient support on AEI**

The third relationship we wanted to verify is H3c, relating to the influence that industry’s lack of support can have on AEI. As the perceived support of industry is operationalized by two items, thus we proceed to a multiple regression. The latter, detailed in the table, shows an acceptable correlation within the sample. The intensity of this relationship is estimated at (R= 51.6% and R<sup>2</sup>= 22.7%). In addition, the observed coefficient F (6.712; sig. =.003) is greater than the F calculated for 1 and 37 degrees of freedom (F = 4.171).

Although, the second component related to the situation of industry (There is a lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups) have sigs above the threshold  $\alpha = 0.05$  (sig<sup>2</sup>=0.850). To this end, this component has no impact on the perceived support of industry. The hypothesis 3c: industry’s insufficient support effect negatively on academic’s behaviour toward entrepreneurship is partially validated.

**Table III-26: Results of the regression of perceived support of industry**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	10,855	2	5,428	6,712	,003
<b>Residual</b>	29,920	37	,809		
<b>Total</b>	40,775	39			
<b>R<sup>2</sup></b>	,266				
<b>Adjusted R<sup>2</sup></b>	,227				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		4,636	,000		
<b>Perceived support of industry_1</b>	,485	2,294	,028		
<b>Perceived support of industry_2</b>	,040	,190	,850		

Source : SPSS

In accordance with these results, we conclude that the hypothesis 3: the environmental condition influence negatively academic's entrepreneurial intentions is “validated”.

**2.2.2.4. The influence of academic’s entrepreneurial attitudes on his EI**

The relationship we are about to study concerns the influence of academic’s attitudes toward entrepreneurship on his EI. The impact of EA on AEI is formulated through two items, thus we proceed to a multiple regression. The latter, detailed in the table, shows an

acceptable correlation within the sample. Both mobilised items shows a significant correlation (sigs above the threshold  $\alpha = 0.05$  (sig1=0.024 and sig2=0.20). The intensity of this relationship is estimated at (R= 58.6% and R<sup>2</sup>= 30.8%). In addition, the observed coefficient F (9.677; sig. =.000) is greater than the F calculated for 2 and 37 degrees of freedom (F = 3.316), also we notice that the value of the regression coefficient Beta = 0,356 which is significantly high, thus this finding confirms that the higher the entrepreneurial attitudes of the researchers, the stronger their entrepreneurial intention would be. So we can conclude that that the quality of adjustment provided by the regression is significant. There is therefore a significant dependence between having entrepreneurial attitudes on the EI. Thus, on the basis of the linear regression test, hypothesis 4: academic’s entrepreneurial attitudes has a direct, positive effect on AEI, is “validated”.

**Table III-27: Results of the regression of attitude**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	14,004	2	7,002	9,677	,000
<b>Residual</b>	26,771	37	,724		
<b>Total</b>	40,775	39			
<b>R<sup>2</sup></b>	,343				
<b>Adjusted R<sup>2</sup></b>	,308				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		1,721	,094		
<b>Attitude_1</b>	,344	2,360	,024		
<b>Attitude_2</b>	,356	2,441	,020		

Source : SPSS

**2.2.2.5. The influence of academic’s self-efficacy on his EI**

Together with attitudes, another well-known antecedent of intention is self-efficacy. In studies of entrepreneurial behaviour, it has been found that beliefs in self-efficacy may be relevant to uncovering the skills necessary to succeed in each of the different stages that a potential entrepreneur must experience. Thus, we wanted to verify H5 relating to the influence academic’s self-efficacy on his EI.

The impact of SE on AEI is formulated through two main items, thus we proceed to a multiple regression. The latter, detailed in the table, shows an acceptable correlation within the sample. The intensity of this relationship is estimated at (R= 54.0% and R<sup>2</sup>= 25.3%). In addition, the observed coefficient F (7,606; sig. =.002) is greater than the F calculated for 2

and 37 degrees of freedom ( $F = 3.316$ ). Although, we must highlight that only item1 -which refer to academic’s ability to recognize when an idea or research result is effective enough to carry out a successful entrepreneurial project- is statistically significant (  $Beta = 0,570$  for  $sig = 0.002$ ), also this finding confirms those founded by Fernández-Pérez (V) et al: “Academics with high Self-efficacy on opportunity recognition (SOR) values tend to be confident and self-assured of their ability to exploit the opportunities identified in their research, even when they are aware of their inexperience and possible lack of entrepreneurial skills”<sup>1</sup>. For the second component related to SE -which represents the academic’s ability to identify potential sources of funding to invest in a new business-, we notice that he have sigs above the threshold  $\alpha = 0.05$  ( $sig2=0.768$ ), then, this component has no impact on AEI.

To this end, we may highlight that there is a significant dependence between academic’s Self-efficacy on opportunity recognition on his EI. Thus, on the basis of the linear regression test, hypothesis 5: academic’s entrepreneurial self-efficacy has a direct, positive effect on AEI, is “partially validated”.

**Table III-28: Results of the regression of self-efficacy**

Variance analysis					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	11,880	2	5,940	7,606	,002
<b>Residual</b>	28,895	37	,781		
<b>Total</b>	40,775	39			
<b>R<sup>2</sup></b>	,291				
<b>Adjusted R<sup>2</sup></b>	,253				
Coefficients analysis					
	Beta	t value	Sig.		
<b>(Constant)</b>		4,055	,000		
<b>self-efficacy _1</b>	,570	3,267	,002		
<b>self-efficacy _2</b>	-,052	-,298	,768		

Source : SPSS

<sup>1</sup> FERNÁNDEZ-PÉREZ (V) et al: “Business social networks and academics’ entrepreneurial intentions”: Op.cit, p.298.

**2.2.3. Filtering the results**

The question that generally follows the multiple regression approach is to choose among the variables X the smallest number of them that best explains the variability of Y. this is why we decided to use another method for the linear regression: the stepwise method; a common method of fitting regression that first includes in the model the variable that proposes the best determination coefficient. Then, the one that most improves the coefficient of determination and so on. The results of this method in linear regression presented in the following table shows perfect correlation and linear determination coefficients (R= 93.3% and R<sup>2</sup>= 87.1%), with a very strong association between academic’s entrepreneurial intentions and their prior experiences in consulting activities (Beta= 93.3%). In addition, the observed coefficient F (54,082; sig. =.000) is greater than the F calculated for 1 and 8 degrees of freedom (F = 5.318).

**Table III-29: Results of the stepwise regression**

<b>Variance analysis</b>					
	Sum of Squares	DF	Mean Square	F value	Sig.
<b>Model</b>	16,116	1	16,116	54,082	,000
<b>Residual</b>	2,384	8	,298		
<b>Total</b>	18,500	9			
<b>R<sup>2</sup></b>	,871				
<b>Adjusted R<sup>2</sup></b>	,855				
<b>Coefficients analysis</b>					
	Beta	t value	Sig.		
<b>(Constant)</b>		1,438	,188		
<b>Previous professional experiences</b>	,933	7,354	,000		

Source : SPSS

In accordance with this results, we found that the most reliable predictor for this model is related to academic’s professional social networks, explained by his experiences in consulting activities, which have a great effect helping him identify opportunities for the commercial application of his research. Therefore, our results confirm the results of EMIN, in which she found that consulting is often the first step towards more advanced forms of collaboration, hence it provides a direct means of establishing personal contacts and most importantly, it gradually facilitates participation in a new business.

The results obtained highlight the positive roles played by professional social networks in promoting academic’s entrepreneurial intentions. As a final result, we may declare that the perfect predictors in our selected model are: academic’s experience in consulting activities.

In the tables below we summarize all the results of the hypotheses tested in this phase of the study:

**Table III-30:** Summary of the results of the statistical tests performed on the research hypotheses.

Research hypotheses	Results of the tests
Hypothesis 1: academic’s professional social networks are significantly related to their EI.	Partially validated
Hypothesis 1a: academic’s prior professional experiences are significantly related to their EI.	Validated
Hypothesis 1b: academic’s prior entrepreneurial experiences are significantly related to their EI.	Rejected
Hypothesis 1c: academic’s experience in professional forums is significantly related to their entrepreneurial intentions.	Rejected
Hypothesis 2: academic’s personal social networks are significantly related to their EI.	Partially validated
Hypothesis 2a: academic’s perceived personal support is significantly related to EI.	Rejected
Hypothesis 2b: the extent of perceived role models is positively related to the intensity of academic-entrepreneurial intentions.	Validated
Hypothesis 3: the environmental condition influence negatively academic's entrepreneurial intentions.	Validated
Hypothesis 3a: universities’ insufficient support effect negatively on academic’s behaviour toward entrepreneurship.	Validated

Hypothesis 3b: government’s insufficient support effect negatively on academic’s behaviour toward entrepreneurship.	Validated
Hypothesis 3c: industry’s insufficient support effect negatively on academic’s behaviour toward entrepreneurship.	Partially validated
Hypothesis 4: academic’s entrepreneurial attitudes have a positive effect on their EI.	Validated
Hypothesis 5: academic’s entrepreneurial self-efficacy have a positive effect on their EI.	Partially validated

Own conception

**2.3. Discussion and contribution**

The main objective of this study is to examine the preference of the act that academic teacher and researchers have for entrepreneurship, and how it can influence their entrepreneurial intentions. In general, we aimed to select an adequate model of the formation of entrepreneurial intentions in academic settings at commercial sciences universities and to empirically test the model to better understand drivers of academic spin-off companies. In this context, the intention to create a business is supposed to depend on two elements: perceived desirability and perceived feasibility, which are affected by five factors; professional and personal social networks, surrounding environment, attitudes and self-efficacy.

A series of linear regressions identified the factors that most explain entrepreneurial intention and the critical actions that make academics feeling able to succeed in a creation.

More specifically, our results confirm Fernández-Pérez (V) et al (2014) findings on the effect of social networks, to this end; prior professional experiences whether it is working for a company or participating in consulting activities, provide a connection with the productive environment and may encourage researchers to exploit their discoveries. While the results reveals no effect of prior entrepreneurial experiences on academic’s desire to create a business. Personal social networks, due to their natural importance in this type of decision, are also examined, but there was insufficient empirical evidence to establish any meaningful relationship between academics perceived support (moral, financial support...etc.) from those who are close to them, while this finding contrasts with those of previous studies in the field

of academic entrepreneurship on one side, but in the case of influence of role models, the results show that the total effect on AEI is positive and significant.

In addition, by exploring the foundations of the variables mobilized to explain the action to be taken, we found that according to academic's responses; attitudes and capacities (SE) are highly important to successfully exploit business opportunities arising from their research. Furthermore, there are significant positive direct effects of EA and SE on AEI. Hence, EA and SE reflect individuals' unique life experiences. One result of this uniqueness is that certain persons, but not others, are "prepared" by their current knowledge and mental frameworks to find new opportunities or to undertake a new venture. The other result is congruent with Fernández-Pérez (V) et al, who state that academics with high Self-efficacy on opportunity recognition (SOR) values tend to be confident and self-assured of their ability to exploit the opportunities identified in their research, even when they are aware of their inexperience and possible lack of entrepreneurial skills.

According to the study results, environmental conditions (political and economic and university's entrepreneurial culture,) have a negative impact on the history of entrepreneurial intention. Indeed if we take the third mission that Algerian universities supposed to embrace , which is facilitating the commercialisation of academics researches, we find that university environments have little entrepreneurial tradition, and EI depends less on these latter and more on the personality of the academics themselves.

It is also vital to mention that in accordance with the previous results, we found that academic's consulting activities had the highest coefficient among all predictors of academics' entrepreneurial intentions, which have a great effect helping him strengthen their professional network and identify opportunities for the commercial application of his research. Therefore, our results confirm the results of EMIN, in which she found that consulting is often the first step towards more advanced forms of collaboration, hence it provides a direct means of establishing personal contacts and most importantly, it gradually facilitates participation in a new business.

### **Conclusion**

In this chapter, we have explained the methodological approach used in this study. First, we detailed the approach of the exploratory survey used in this investigation, ranging

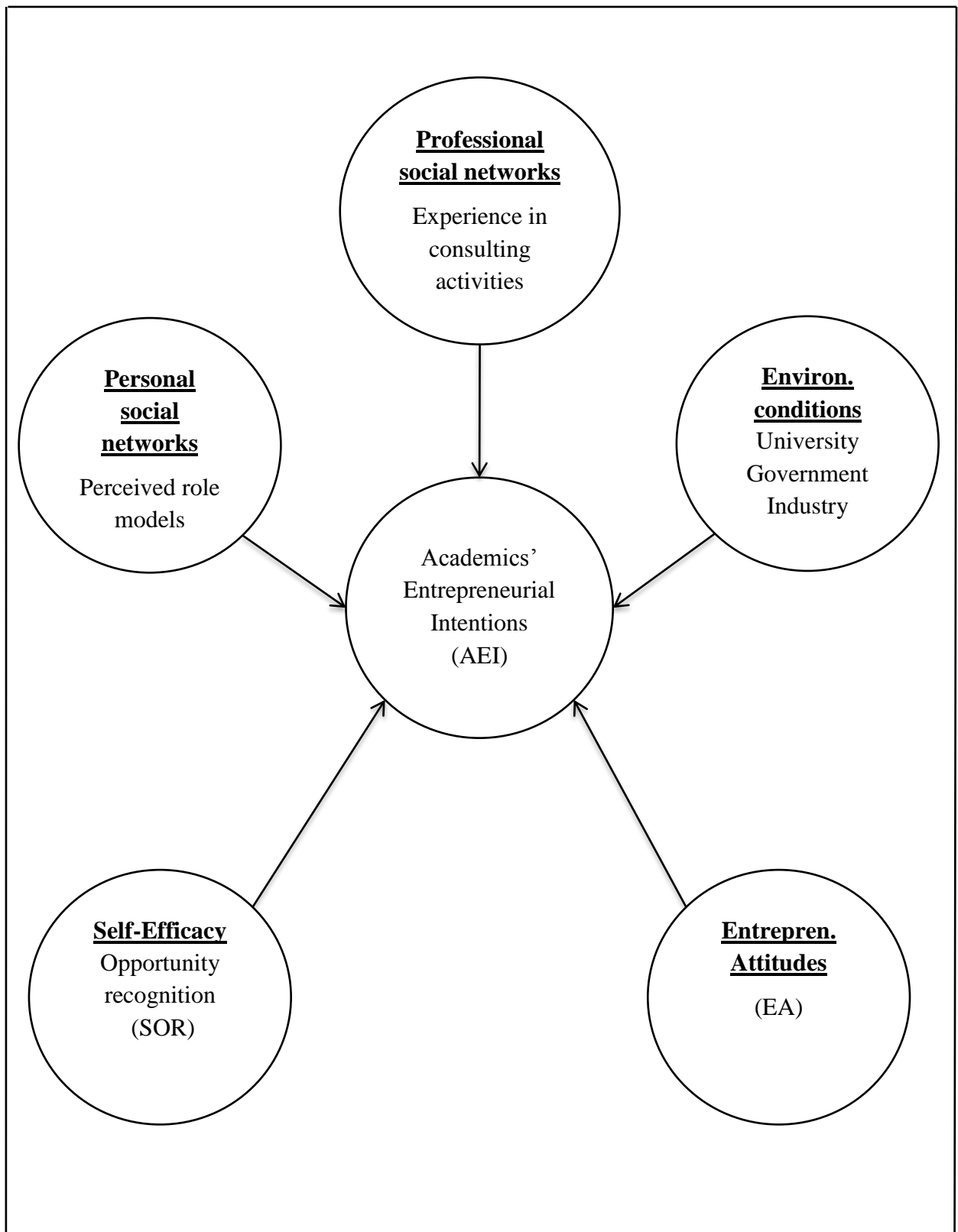
from the type of approach used to analyse the content and the main conclusions reached. We have presented the field of investigation selected, namely EHEC-Alger.

In a second step, in order to ensure methodological rigour, we explained the questionnaire development process and the sampling criteria for the second empirical phase of this study. In line with this, we discussed the principles that characterize our reference sample. Moreover, this chapter was devoted to test the proposed research hypotheses on academic's entrepreneurial intention. We have sought to understand to what extent and by what means the preference of the act and the contexts influence the formation of entrepreneurial intention. Thus, we've focused on two main explanatory variables of entrepreneurial intention, namely the perceived desirability and feasibility of the act of undertaking. These variables were divided into five determinants or factors: academic's professional and personal social networks, environmental conditions and the entrepreneurial attitudes and self-efficacy as important psychological variables for academics.

The results obtained in this study allow us to conclude that academic's entrepreneurial intention are effected by all the mobilised factors, although it is more and highly effected by their prior professional experiences, in this case their consulting activities. However, unlike the literature review, academic's perceived support from clos relations (family, friends and colleagues), besides to their prior entrepreneurial experiences and their experience in professional forums has no influence on the determinants of entrepreneurial intention.

Based on the relationships and assumptions tested, we can use the research model validated in the figures below.

**Figure III-6:** An explanatory and predictive model of entrepreneurial intention validated with higher education teachers and researchers.



Own conception

**GENERAL  
CONCLUSION**

This study aimed to provide a better understanding of the determinants of academics' entrepreneurial intentions, in other words, the study aimed to answer the following question: "how to explain the academic's intention to start a business or a spin-off ". To handle this study in depth, this work aim to find an adequate model of the formation of entrepreneurial intentions and to empirically test the model across cultures to better understand drivers of academic spin-off companies.

In this study, we have relied on intention models that have the advantage of providing a coherent, simple and valid framework for how intentions are formed. We have adapted and applied them to our particular subject and study context. A literature review in entrepreneurship in general and academic entrepreneurship in particular, combined with an exploratory survey, allowed us to identify important elements influencing the intentional process of academic teachers and researchers.

That being said, the results of our study are as follow:

The observation of the identified conceptual parameters: social networks; surrounding environment; attitudes and self-efficacy; has been very informative and allowed us to highlight the main determinants of academics' entrepreneurial intentions. To this end we found that these parameters or factor differ in their affection from positive to negative and from high to null affection on AEI:

On the social level, the findings obtained from this study are consistent with the growing consensus that social networks provide an important key to understand entrepreneurship in general and academic entrepreneurship in particular. Indeed, the results revealed that academic's participations in consulting activities had the highest coefficient among all predictors of academics' entrepreneurial intentions. This latter provides a connection with the productive environment and may encourage researchers to exploit their discoveries.

In view of these findings, we can confirm our first hypothesis: academic's professional networks are significantly related to their EI. While this is a partial confirmation, because we didn't confirm the second sub hypothesis which assumes that academic's prior entrepreneurial experiences are significantly related to their EI.

Furthermore, on studying the individual contributions made by social networks, we find that personal social networks barely influence AEI. Personal contacts often lack industry-specific knowledge and skills, and are less helpful to entrepreneurs than are other social networks in terms of significantly increasing AEI. However, in the case of influence of role models, the results show that the total effect on AEI is positive and significant.

In accordance with these findings, we can confirm our second hypothesis which postulates that academic's personal social networks are significantly related to their EI. While this confirmation is not absolute, because we didn't confirm the first sub hypothesis which assumes that academic's perceived personal support is significantly related to their EI.

On the individual level (psychologic), there are significant positive direct effects of EA and SE on AEI, highlighting the importance of cognitive variables on these academics' intentions. EA and SE reflect individuals' unique life experiences. One result of this uniqueness is that certain persons, but not others, are "prepared" by their current knowledge and mental frameworks to find new opportunities or to undertake a new venture. These findings may be explained through academic's special characteristics who usually believe they have a mastery of their field and are capable of exploiting their knowledge, despite their possible lack of business skills. For example, academics may feel they can control entrepreneurial activities in their specific area better than any simple entrepreneur.

In view of these findings, we can confirm the fourth and the fifth hypothesis: academic's EA and SE are significantly related to their EI.

Finally, on the cultural and environmental level, on studying the effect of surrounding environment on academic's attitudes towards entrepreneurship, we found that the laws and regulations of government are the main constraints that academics have to deal with, hence, government authorities are way off track in seeking to further promote the emergence of entrepreneurial activity by academics. Furthermore, if we take the third mission that Algerian business school supposed to embrace, which is facilitating the commercialisation of academics researches, we find that business school environments have little entrepreneurial tradition, and EI depends less on these latter and more on the personality of the academics themselves. Also we must highlight that 75.5% of the participants in this study state that even if they recognise an opportunity for the commercialisation of their researches, it is very hard to find investors and fund for their entrepreneurial ambitions.

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In view of these findings, we can confirm the third hypothesis: the environmental condition influence negatively academic's entrepreneurial intentions.

In our opinion, this study leads to a better knowledge of the determinants of the intention to create a company in an academic environment. More precisely, we believe we have important contributions:

1. The findings of such study would help for policy makers in government authorities realise the highly intentions among academic's toward entrepreneurship, besides to their role in the economic growth and knowledge transfer as a key element to the increase of the universities' efficiency and especially to the linkage between academia and industry in order to closed the gap between pure and applied science.
2. In addition to these considerations, study results shows that the third mission or the entrepreneurial missions of Algerian business schools are still negotiating their position within business school's strategies. Moreover, the present study seems to confirm that, in sociocultural and business school environments with little entrepreneurial tradition, EI depends less on this university's support and more on the personality of the academics themselves.
3. The third contribution made in this study highlight that 30.8% of the participants in this study state that they don't really expect or wait for support and help from their close relations (family, friends, colleagues...etc.), but they still have a highly important attitudes towards entrepreneurship. This may be explained by academic's unique life experiences, one result of this uniqueness is that certain persons, but not others, are "prepared" by their current knowledge and mental frameworks to find new opportunities or to undertake a new venture relaying only on theme selves. These findings may be explained through academic's special characteristics who usually believe they have a mastery of their field and are capable of exploiting their knowledge, despite their possible lack of business skills or funds.
4. In addition, we must highlight that our study results differentiate from those of Pablo et al (2009) who highlight that academic's prior entrepreneurial experience increases their EI, hence we found that even bad entrepreneurial experiences or loss have null effect on AEI. Furthermore, these bad experiences help to develop their skills necessary in the identification and exploitation of newer entrepreneurial opportunities.

5. The fifth contribution made in this study concerns gender. Various studies of the development of entrepreneurial intentions have detected gender-based differences (Fernández-Pérez (V) et al, 2014). Our study reveals that there is no significant difference between male and female academics regarding perceptions on business start-up. To this end, we highly affirm and reject theoretical advances which report that women not only view themselves as being less capable to become entrepreneurs but also perceive their environment as more difficult and less appropriate for entrepreneurial initiatives.

6. In addition to these considerations, our study results are congruent with EMIN (2010), who state that the factor that most influences the creation of spin-offs is the status and quality of academic researchers, which also influences the strength of entrepreneurial commitment. Indeed, we found that greater numbers of years spent at an academic institution hinder the formation of academic-entrepreneurial intentions. Because tenured professorships guarantee academics' basic socioeconomic status, they are less motivated to endanger their research by redirecting interest and energy to business matters.

7. The seventh contribution made in this study concerns academic's self-efficacy. Our study results are congruent with Fernández-Pérez (V) et al, who state that academics with high Self-efficacy on opportunity recognition (SOR) values tend to be confident and self-assured of their ability to exploit the opportunities identified in their research, even when they are aware of their inexperience and possible lack of entrepreneurial skills. Indeed, we found that 78% of the participants in this study state that they are very capable of recognizing when an idea or research result is effective enough to carry out a successful entrepreneurial project. These findings are very satisfying, especially in the academic context where the extent to which opportunities are identified in prior research could be a crucial factor in early stages of the entrepreneurial process, even when individuals may lack other types of entrepreneurial skills.

8. Finally and most important findings of this survey is about academic's professional experiences, where we found that the most reliable predictor for the tested model is related to academic's experiences in consulting activities, which have a great effect helping them identify opportunities for the commercial application of his research. Therefore, our results confirm the one of EMIN, in which she found that consulting is often the first step towards more advanced forms of collaboration, hence, it provides a direct means of establishing personal contacts and most importantly, it gradually facilitates participation in a new business. To this end, we postulate that consulting can be very important in boosting academic's desire

to commercialise their researches and to generate research opportunities, furthermore, we must highlight the value of how this previous professional experience enhanced theory in the classroom by creating a more grounded learning environment for students.

Based on the results of our study, as well as our findings in the field, we have compiled a list of recommendations on various points, including:

1. Given the important role of social networks, academic's with highly market-oriented should consider participating in consulting activities as a key element and the first tool of interaction with the industrial world, hence, this latter would provide them wild connections with the productive environment and may encourage them to exploit their discoveries.
2. Given the importance of universities in fostering academic entrepreneurship, it would be interesting to incorporate new incentive systems for academics that not only look at their teaching and research performance, but also place special emphasis on activity to transfer research results to the production sector (patent licencing, collaborative projects, spin-off creation, etc.). In addition, academic institutions should allow a leave of absence for academics that are starting their own company based on academic research, which actively promote cooperation between academics and industry,

Despite its contributions, this research has several limitations:

First, the model tested in this study includes variables that are, according to prior literature, the most probable determinants of intentions. There are other important variables that could be considered for inclusion, but this would make empirical examination less feasible.

Second, the cross-sectional nature of the research design, particularly the fact that we included dimensions of entrepreneurial thinking that could evolve during and after important events in individuals' lives, thus modifying their intentions and ambitions.

Third, although the theory suggested the hypothesized causal directions, the cross-sectional nature of this study can't prove causation but can only support a set of hypothesized paths. Therefore; we cannot eliminate the possibility of reverse causality. Thus, a longitudinal study could also reveal how many academics who have entrepreneurial intentions indeed became entrepreneurs after a few years.

Finally, despite the effort we put into the design of the present study, it is not without limitations, hence a common limitation of this type of study is that deriving from the self-selection. In particular, persons with a prior interest in the subject of study are more likely to be attracted to respond to such a survey.

This investigation presents various limitations, and so further possibilities for empirical study remain to be explored. Thus, Future studies should focus on analysing other variables that might significantly shape entrepreneurial intention among academics, such as patenting activities, past entrepreneurial behaviour...etc. More studies are also needed to determine, in a more detailed way, the areas of applied research where academics are more likely to develop entrepreneurial intentions that could eventually lead them to become entrepreneurs.

# **References**

### 1. Books

- BHARGAVA, (S): *Developmental Aspects of Entrepreneurship*, Response Books, First edition, 2007.
- CASSON, (Marck): *The Entrepreneur: An Economic Theory*, Edward Elgar, Second edition, Cheltenham, UK, 2003.
- FAYOLLE, (A) and REDFORD, (D): *Handbook on the entrepreneurial university*, Elgar, 2014.
- GUERRERO, (M) and URBANO, (D): *The development of an entrepreneurial university*, Springer, 2010.
- LOWE, (Robin) and MARRIOTT, (Sue): *Enterprise: Entrepreneurship and Innovation*, Elsevier, 2006.
- LUNDSTROM, (Anders) and STEVENSON, (Lois): *entrepreneurship policy: theory and practice*, kluwer academic publishers, 2005.
- TIMMONS, (J. A) : *New venture creation* . Irwin, McGraw-Hill, 1994.
- WESTHEAD, (Paul) and WRIGHT (Mike): *Entrepreneurship: a very short introduction*, Oxford University Press, First Edition, 2013.

### 2. Reviews and periodicals

- BALL, (Stephen): “*The Importance of Entrepreneurship to Hospitality*”, in revue Leisure, Sport and Tourism, January, 2005.
- Bird (B.J): “*Implementing entrepreneurial Ideas: The case for intention*”, revue in Academy of Management Review, N°13, 1988.
- Boyd, (N. G) and Vozikis, (G. S): “*The influence of self-efficacy on the development of entrepreneurial intentions and actions*”, in revue Entrepreneurship Theory & Practice, N°18, January, 1994.
- CANTARAGIU, (R): “*towards a conceptual delimitation of academic entrepreneurship*”, revue in Management & Marketing Challenges for the Knowledge Society, 2012, Vol. 7, No. 4.
- FERNÁNDEZ-PÉREZ (V) et al: “*Business social networks and academics’ entrepreneurial intentions*”, in revue Industrial Management & Data Systems, Vol. 114, No. 2, August, 2014.

- FERNÁNDEZ-PÉREZ (V) et al: “*Professional and personal social networks: A bridge to entrepreneurship for academics?*”, in revue *European Management Journal*, Elsevier,2014.
- HERNANDEZ, (E.M): “*Le processus entrepreneurial : vers un modèle Stratégique d’entrepreneuriat*”, Editions L’Harmattan.
- SAMO (A) and HUDA (N): “*Triple Helix and academic entrepreneurial intention: understanding motivating factors for academic spin-off among young researchers*”, revue in *Journal of Global Entrepreneurship Research*, N°12,sept, 2019.
- JAZIRI, (R) : « *L’acadépreneuriat : une nouvelle thématique de recherche dans le champ de l’entrepreneuriat* », in revue *Entrepreneuriat, PME durables et réseaux sociaux*, Collection Mouvements économiques et sociaux, Edition L’Harmattan, Paris.
- MIRANDA (F.J) et al: “*Academic entrepreneurship in Spanish universities: An analysis of the determinants of entrepreneurial intention*”, revue in *European Research on Management and Business Economics*, N°23, January, 2017.
- PRODAN, (P) and DRNOVSEK (M): “*Conceptualizing academic-entrepreneurial intentions: An empirical test*”, in revue *Technovation* N°30, 2010.
- TOUNES, (A) : « *L’intention entrepreneuriale des étudiants : le cas français* », in revue des sciences de gestion, N°219, 2006.
- TOUNES, (A), « *L’intention entrepreneuriale des étudiants : le cas français* », in revue des sciences des gestions N°219, 2006/3.

### 3. Academic papers

- BOUHDJEUR, (R): *The Entrepreneurial Intention among Algerian Students*, thesis of Master’s Degree In Commercial Sciences, Ecoles des Hautes Etudes Commerciales of Algiers, 2012.
- SALEH, (Léna): *L’intention entrepreneuriale des étudiantes : cas du Liban*, Thèse de Doctorat en Sciences de Gestion, l’Université de NANCY 2, soutenue le 30 septembre 2011.
- TOUNES, (A) : *L’intention entrepreneuriale : une recherche comparative entre des étudiants suivants de formations en entrepreneuriat (Bac+5) et des étudiants en DESS CAAE*, thèse de doctorat en sciences de gestion, université de Rouen, 2003.

#### 4. Conferences

- GUERRERO-CANO, (M), KIRBY, (D) and URBANO, (D): “*a literature review on entrepreneurial universities: an institutional approach*”, presented at the 3rd Conference of Pre-communications to Congresses. Barcelona, June, 2006.
- JAZIRI, (R) and PATUREL, (R) : « *academic entrepreneurship ou acadépreneuriat : vers une reconfiguration du modèle de l’Université entrepreneurial* », Actes du 9ème symposium international sur : « *Pratiques entrepreneuriales: Quels enjeux pour l’innovation et la croissance économique en Algérie* », 30-31 mai 2010, Hilton, Alger.
- JAZIRI, (R) and PATUREL, (R): « *L’intention entrepreneuriale de l’universitaire : vers un consensus conceptuel de l’“academic entrepreneurship” à l’acadépreneuriat* », Actes du colloque international sur « *l’entrepreneuriat à la recherche de l’intention : l’imagination au service de la gestion* », ESC Bretagne Brest, 29-30 janvier 2009.
- JAZIRI, (Raouf) et PATUREL, (Robert): « *Quels paradigmes sont pertinents pour la recherche sur le phénomène d’acadépreneuriat ?* », Actes du colloque international sur « *L’entrepreneuriat à la recherche de l’intention : De l’auto-entreprise à la PME partenariale* », Casablanca, 20 et 21 mai 2010.
- PABLO, (D) et al: *Academic entrepreneurship: what are the factors shaping the capacity of academic researchers to identify and exploit entrepreneurial opportunities?* DENMARK, June 17 - 19, 2009.
- VERSTRAET, (T) et FAYOLLE, (A) : « *quatre paradigmes pour cerner le domaine de recherche en entrepreneuriat* », Acte du 7ème Congrès International Francophone en Entrepreneuriat et PME, Montpellier, 27-28-29/10/2004.
- EMIN, (Sandrine) : *La création d’entreprise en contexte universitaire : les facteurs de l’engagement*, Faculté des Sciences de l’administration, 13-14-15 juin 2001.

# **Appendixes**

## Appendix I

### Questionnaire

For the fulfilment of the requirements for Master's degree in commercial sciences, which aims to analyse the determinants of the entrepreneurial intention of Algerian academic teachers and researchers, we are asking for your kindness to answer this questionnaire, which will allow us to evaluate the determinants favouring entrepreneurship according to the perception and commitment of Algerian teachers and researchers.

PS: The quality of our research depends directly on the quality of your answers.

Thank you for your collaboration

Student at the Ecole des Hautes Etudes Commerciales (EHEC Ex INC).

#### About the entrepreneurial intention

1. Do you have an entrepreneurial intention?

- Yes                       No

If yes, please answer the following questions, if No, please skip to question 23

2. If you identify possibilities for a commercial application for your researches, your entrepreneurial intentions would be?

- Very weak*                      *very strong*  
 1     2     3     4     5

3. In which sector of activity do you prefer to do business?

- Agro-food industry.                       Tourism Services  
 Training and Consulting Services  
 Manufacturing industry                       Logistics and Distribution                       Others

#### About academic's professional social networks

4. Have you been personally involved in the creation of a university spin-off or start-up in the last 10 years?

- Yes                       No                      *if No please skip to question 6*

5. What was the influence of this professional implication on your entrepreneurial intention?

- Very negative*                      *very positive*  
 1     2     3     4     5

6. Are you/were you employed in a company?

Yes       No      *if No please skip to question 9*

7. What is the influence of working for a company on your entrepreneurial intention?

*Very negative*       1       2       3       4       5      *very positive*

8. Do you think that your work in a company will help you to?

*(Check one box for each of the following terms)*

	Totally disagree	rather disagree	neither agree nor disagree	rather agree	totally agree
1. Identify opportunities for commercial application of your research?					
2. strengthen your professional network					

9. Have you participated in consulting activities for a company?

Never       Sometimes       Several times      *if never please go to question 12*

10. What is the influence of these consulting activities on your entrepreneurial intention?

*Very negative*       1       2       3       4       5      *very positive*

11. Do you think these consulting activities will help you to?

*(Check one box for each of the following terms)*

	Totally disagree	rather disagree	neither agree nor disagree	rather agree	totally agree
1. Identify opportunities for commercial application of your research?					
2. strengthen your professional network					

12. Have you participated in conferences, seminars dealing with entrepreneurship issues in the last 5 years?

Yes       No      *if No please skip to question 15*

13. What is the impact of these events on your entrepreneurial intention?

*Very negative*       1       2       3       4       5      *very positive*

14. Do you think that your contacts or discussions with your colleagues at these events could provide you with useful information to commercialise your research?

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5

About academic's personal social networks

15. Are there any entrepreneurs (liberal professions, entrepreneurs, etc.) in your environment?  
 Yes                       No                      *if No please skip to question 17*

16. What is the impact of exposure to these entrepreneurial models on your entrepreneurial intention?

*Very negative*                      *very positive*  
 1     2     3     4     5

17. If you decide to set up an entrepreneurial project, would you expect support and encouragement from your close relations (family, friends, and colleagues)?

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5

About academic's surrounding environment

18. To what extent would the following factors hinder the development of entrepreneurial intention among teachers/researchers?

*(Check one box for each of the following terms)*

	Totally disagree	rather disagree	neither agree nor disagree	rather agree	totally agree
1. In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment; teachers and entrepreneurs at the same time.					
2. Higher education institutions are not interested in spending time and money to help researchers commercialise their research?					
3. It is difficult for a researcher to find investors to commercialize his research.					

4. There is a lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups.					
--	--	--	--	--	--

About academic's attitudes

19. What do you think of the following statements?

*(Check one box for each of the following terms)*

	Totally disagree	rather disagree	neither agree nor disagree	rather agree	totally agree
1. You have an entrepreneurial attitude					
2. Given the opportunity and resources, you would like to create a spin-off business.					

20. Why do you have an entrepreneurial attitude?

*(Check one box for each of the following terms and conditions)*

1. Capture a business opportunity by marketing your research.

Yes                       No

2. Fleeing the routine of teaching and scientific research to an entrepreneurial adventure.

Yes                       No

3. Have a dual career perspective (researcher-entrepreneur).

Yes                       No

21. To what extent are you able to:

*(Check one box for each of the following terms and conditions)*

	Totally unable	rather unable	neither able nor unable	rather able	totally able
1. Recognize when an idea or research result is effective enough to carry out a successful entrepreneurial project.					
2. Identify potential sources of funding to invest in a new business.					
3. Ability to surround yourself with competent people (personal network) to accompany you and support you in formalising your project.					

About the factors inhibiting entrepreneurial decision making

22. What do you think of the following statements?

*Check one box for each of the following terms and conditions)*

	Totally disagree	rather disagree	neither agree nor disagree	rather agree	totally agree
1. For a teacher/researcher, academic commitment is more important than an entrepreneurial career.					
2. Researchers have more difficulty in reconciling academic and entrepreneurial professional life (obstacles of time, energy, means...etc.).					
3. Researchers have a greater aversion to risk (risk of influencing their academic qualifications and titles if they fail).					

**PS: This part only concerns those who do not have entrepreneurial intentions**

Academic's background effects on his/her entrepreneurial intention

23. What is the impact of these constrains on your entrepreneurial intention?

1. The lack of commercial application possibilities for your research is the constraint on your entrepreneurial intention.

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5

2. You don't have an entrepreneurial attitude.

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5

3. You have a negative entrepreneurial experience that curbs your desires to another entrepreneurial adventure.

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5

4. One of the closest relations (families, colleagues, etc.) has a negative entrepreneurial experience that has negatively influenced your entrepreneurial intention.

*Totally disagree*                      *Totally agree*  
 1     2     3     4     5



Identification sheet

1. Your age (in years)?

- 23 – 28 years     29 – 34 years     35 – 40 years     over 40 years

2. Gender?

- Male     Female

3. What is your status in the university?

- Professor     Senior lecturer     Assistant lecturer  
 Associate teacher     PhD student

4. Please specify your scientific field?

- Economic, Management and Commercial Sciences  
 Mathematics and Informatics     Human and Social Sciences  
 Law and Political Science     Language and Literature

*Thank you for your precious collaboration*

## Appendix II

### Homogeneity test of the scales

#### PCA for Attitudes

Cronbach's	
Alpha	N of Items
,702	2

#### **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	1,553	77,660	77,660	1,553	77,660
2	,447	22,340	100,000		

Extraction Method: Principal Component Analysis.

#### **Component Matrix<sup>a</sup>**

	Component
	1
Attitude1	,881
Attitude2	,881

Extraction Method: Principal Component Analysis.<sup>a</sup>

a. 1 components extracted.

#### PCA for Self-efficacy

#### **Reliability Statistics**

Cronbach's	
Alpha	N of Items
,756	2

#### **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	1,609	80,436	80,436	1,609	80,436
2	,391	19,564	100,000		

Extraction Method: Principal Component Analysis.

#### **Component Matrix<sup>a</sup>**

	Component
	1
Self-efficacy_1	,897
Self-efficacy_2	,897

Extraction Method: Principal Component Analysis.<sup>a</sup>  
 a. 1 components extracted.

## **PCA for professional social network**

### **Reliability Statistics**

Cronbach's	
Alpha	N of Items
,832	7

### **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	3,805	54,360	54,360	3,805	54,360
2	1,693	24,180	78,540	1,693	24,180
3	1,089	15,561	94,102	1,089	15,561
4	,302	4,308	98,410		
5	,076	1,093	99,502		
6	,025	,361	99,863		
7	,010	,137	100,000		

### **Total Variance Explained**

Component	Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings	
	Cumulative %	Total	% of Variance	Cumulative %
1	54,360	3,796	54,226	54,226
2	78,540	1,688	24,110	78,336
3	94,102	1,104	15,766	94,102
4				
5				
6				
7				

Extraction Method: Principal Component Analysis.

### **Rotated Component Matrix<sup>a</sup>**

		Component		
		1	2	3
Previous experiences_1	professional	,990	-,054	,039
Previous experiences_3	professional	,987	-,084	-,044
Previous experiences_4	professional	,982	-,007	-,024

Previous professional experiences_2	,930	,236	,099
Experience in professional forums_2	,093	,920	,209
Experience in professional forums_1	-,067	,880	-,290
Exposure to prior entrepreneurial experiences	,010	-,034	,981

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 4 iterations.

## **PCA for personal social network**

### **Reliability Statistics**

Cronbach's Alpha	N of Items
,572	2

### **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	1,443	72,132	72,132	1,443	72,132
2	,557	27,868	100,000		

Extraction Method: Principal Component Analysis.

### **Component Matrix<sup>a</sup>**

	Component 1
If you decide to set up an entrepreneurial project, would you expect support and encouragement from your close relations (family, friends, colleagues)?	,849
What is the impact of exposure to these entrepreneurial models on your entrepreneurial intention?	,849

Extraction Method: Principal Component Analysis.<sup>a</sup>

a. 1 components extracted.

## **PCA for environmental conditions**

### **Reliability Statistics**

Cronbach's Alpha	N of Items
,875	4

### **Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	2,924	73,109	73,109	2,924	73,109
2	,496	12,412	85,521		
3	,336	8,396	93,916		
4	,243	6,084	100,000		

Extraction Method: Principal Component Analysis.

### **Component Matrix<sup>a</sup>**

	Component 1
There is a lack of awareness on the value of innovation in the Algerian market and especially the value of start-ups	,885
It is difficult for a researcher to find investors to commercialize his research.	,882
Higher education institutions are not interested in spending time and money to help researchers commercialise their research?	,866
In Algeria, researchers are disadvantaged in regard to laws and regulations that prohibit duplicated employment; teachers and entrepreneurs at the same time.	,783

Extraction Method: Principal Component Analysis.<sup>a</sup>

a. 1 components extracted.

**Appendix III**

**Parametric test**

**Chi-Square Tests for the association between academic’s professional status and EI**

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8,122 <sup>a</sup>	4	,087
Likelihood Ratio	11,002	4	,027
Linear-by-Linear Association	7,774	1	,005
N of Valid Cases	53		

a. 6 cells (60,0%) have expected count less than 5. The minimum expected count is ,49.

**Symmetric Measures**

		Value	Approximate Significance
Nominal by Nominal	Phi	,391	,087
	Cramer's V	,391	,087
N of Valid Cases		53	

**Chi-Square Tests for the association between academic’s age and EI**

**Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6,123 <sup>a</sup>	3	,106
Likelihood Ratio	7,938	3	,047
Linear-by-Linear Association	5,750	1	,016
N of Valid Cases	53		

a. 4 cells (50,0%) have expected count less than 5. The minimum expected count is 1,96.

### Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,340	,106
	Cramer's V	,340	,106
N of Valid Cases		53	

### Chi-Square Tests for the association between academic's gender and EI

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,524 <sup>a</sup>	1	,469		
Continuity Correction <sup>b</sup>	,163	1	,686		
Likelihood Ratio	,529	1	,467		
Fisher's Exact Test				,536	,345
Linear-by-Linear Association	,514	1	,473		
N of Valid Cases		53			

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 6,13.

b. Computed only for a 2x2 table

### Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-,099	,469
	Cramer's V	,099	,469
N of Valid Cases		53	

## Appendix IV

### TEST OF THE VALIDITY OF THE RELATIONSHIPS

#### Linear regression for Self efficacy

##### Variables Entered/Removed<sup>a</sup>

Model	Variables		Method
	Entered	Removed	
1	Self-efficacy_2, Self-efficacy_1 <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

##### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,540 <sup>a</sup>	,291	,253	,884	,291	7,606

a. Predictors: (Constant), Self-efficacy\_2, Self-efficacy\_1

b. Dependent Variable: Entrepreneurial intentions.

##### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,880	2	5,940	7,606	,002 <sup>b</sup>
	Residual	28,895	37	,781		
	Total	40,775	39			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Self-efficacy\_2, Self-efficacy\_1

##### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,227	,549		4,055	,000
	Self-efficacy_1	,546	,167	,570	3,267	,002
	Self-efficacy_2	-,052	,174	-,052	-,298	,768

a. Dependent Variable: Entrepreneurial intentions

#### Linear regression for Attitudes

##### Variables Entered/Removed<sup>a</sup>

Model	Variables		Method
	Entered	Removed	
1	Attitude2, Attitude1 <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,586 <sup>a</sup>	,343	,308	,851	,343	9,677

a. Predictors: (Constant), Attitude2, Attitude1

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14,004	2	7,002	9,677	,000 <sup>b</sup>
	Residual	26,771	37	,724		
	Total	40,775	39			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Attitude2, Attitude1

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,196	,695		1,721	,094
	Attitude1	,292	,124	,344	2,360	,024
	Attitude2	,460	,188	,356	2,441	,020

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Previous professional experiences

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Previous professional experiences <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,574 <sup>a</sup>	,330	,309	,903	,330	15,747

a. Predictors: (Constant), Previous professional experiences

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12,853	1	12,853	15,747	,000 <sup>b</sup>

Residual	26,118	32	,816		
Total	38,971	33			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Previous professional experiences

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Coefficients	
1	(Constant)	1,838	,573		3,206
	Previous professional experiences	,579	,146	,574	3,968

**Coefficients<sup>a</sup>**

Model		Sig.	95,0% Confidence Interval for B	
			Lower Bound	Upper Bound
1	(Constant)	,003	,670	3,007
	Previous professional experiences	,000	,282	,876

a. Dependent Variable: Entrepreneurial intentions.

**Linear regression for Exposure to prior entrepreneurial experiences**

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Exposure to prior entrepreneurial experiences <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					R Change	Square F Change
1	,121 <sup>a</sup>	,015	-,047	1,193	,015	,239

**Model Summary<sup>b</sup>**

Model	Change Statistics		Sig. F Change
	df1	df2	
1	1	16	,632

a. Predictors: (Constant), Exposure to prior entrepreneurial experiences

b. Dependent Variable: Entrepreneurial intentions.

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,340	1	,340	,239	,632 <sup>b</sup>

Residual	22,771	16	1,423		
Total	23,111	17			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Exposure to prior entrepreneurial experiences

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Coefficients	
1	(Constant)	4,458	1,419		3,141
	Exposure to prior entrepreneurial experiences	-,161	,329	-,121	-,489

### Coefficients<sup>a</sup>

Model		Sig.	95,0% Confidence Interval for B		Correlations
			Lower Bound	Upper Bound	Zero-order
1	(Constant)	,006	1,449	7,466	
	Exposure to prior entrepreneurial experiences	,632	-,859	,537	-,121

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Experience in professional forums

### Variables Entered/Removed<sup>a</sup>

Model	Variables		Method
	Entered	Removed	
1	Experience in professional forums <sup>b</sup>		Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					Change	F Change
1	,143 <sup>a</sup>	,021	-,008	1,060	,021	,713

### Model Summary<sup>b</sup>

Model	Change Statistics		
	df1	df2	Sig. F Change
1	1	34	,404

a. Predictors: (Constant), Experience in professional forums

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,800	1	,800	,713	,404 <sup>b</sup>
	Residual	38,172	34	1,123		
	Total	38,972	35			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Experience in professional forums

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Coefficients	
1	(Constant)	3,348	,824		4,064
	Experience in professional forums	,174	,206	,143	,844

### Coefficients<sup>a</sup>

Model		Sig.	95,0% Confidence Interval for B		Correlations
			Lower Bound	Upper Bound	Zero-order
1	(Constant)	,000	1,674	5,023	
	Experience in professional forums	,404	-,245	,593	,143

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Perceived personal support

### Variables Entered/Removed<sup>a</sup>

Model	Variables		Method
	Entered	Removed	
1	Perceived personal support <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					Change	F Change
1	,146 <sup>a</sup>	,021	-,005	,981	,021	,803

### Model Summary<sup>b</sup>

Model	Change Statistics		
	df1	df2	Sig. F Change
1	1	37	,376

a. Predictors: (Constant), Perceived personal support

b. Dependent Variable: Entrepreneurial intentions.

## ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,772	1	,772	,803	,376 <sup>b</sup>
	Residual	35,587	37	,962		
	Total	36,359	38			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Perceived personal support

## Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Beta	
1	(Constant)	4,598	,548		8,395
	Perceived personal support	-,121	,136	-,146	-,896

## Coefficients<sup>a</sup>

Model		Sig.	95,0% Confidence Interval for B		Correlations
			Lower Bound	Upper Bound	Zero-order
1	(Constant)	,000	3,489	5,708	
	Perceived personal support	,376	-,396	,153	-,146

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Perceived role models

### Variables Entered/Removed<sup>a</sup>

Model	Variables		Method
	Entered	Removed	
1	Perceived role models <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,386 <sup>a</sup>	,149	,120	1,009	,149	5,076

### Model Summary<sup>b</sup>

Model	Change Statistics		
	df1	df2	Sig. F Change
1	1	29	,032

a. Predictors: (Constant), Perceived role models

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,171	1	5,171	5,076	,032 <sup>b</sup>
	Residual	29,539	29	1,019		
	Total	34,710	30			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Perceived role models

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	1,991	,952		2,092	,045
	Perceived role models	,522	,232	,386	2,253	,032

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Perceived support of university

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Perceived support of university <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,452 <sup>a</sup>	,204	,184	,924	,204	9,765

### Model Summary<sup>b</sup>

Model	Change Statistics		
	df1	df2	Sig. F Change
1	1	38	,003

a. Predictors: (Constant), Perceived support of university

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8,336	1	8,336	9,765	,003 <sup>b</sup>
	Residual	32,439	38	,854		

Total	40,775	39			
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a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Perceived support of university

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Coefficients Beta	
1	(Constant)	2,599	,494		5,258
	Perceived support of university	,399	,128	,452	3,125

**Coefficients<sup>a</sup>**

Model		Sig.	95,0% Confidence Interval for B		Correlations Zero-order
			Lower Bound	Upper Bound	
1	(Constant)	,000	1,599	3,600	
	Perceived support of university	,003	,140	,657	,452

a. Dependent Variable: Entrepreneurial intentions.

**Linear regression for Perceived support of industry**

**Variables Entered/Removed<sup>a</sup>**

Model	Variables		Method
	Entered	Removed	
1	Perceived support of industry_2, Perceived support of industry_1 <sup>b</sup>	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

b. All requested variables entered.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					Change	F Change
1	,516 <sup>a</sup>	,266	,227	,899	,266	6,712

**Model Summary<sup>b</sup>**

Model	Change Statistics		
	df1	df2	Sig. F Change
1	2	37	,003

a. Predictors: (Constant), Perceived support of industry\_2, Perceived support of industry\_1

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10,855	2	5,428	6,712	,003 <sup>b</sup>
	Residual	29,920	37	,809		
	Total	40,775	39			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Perceived support of industry\_2, Perceived support of industry\_1

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Beta	
1	(Constant)	2,359	,509		4,636
	Perceived support of industry_1	,404	,176	,485	2,294
	Perceived support of industry_2	,034	,178	,040	,190

### Coefficients<sup>a</sup>

Model		Sig.	95,0% Confidence Interval for B		Correlations
			Lower Bound	Upper Bound	Zero-order
1	(Constant)	,000	1,328	3,390	
	Perceived support of industry_1	,028	,047	,761	,515
	Perceived support of industry_2	,850	-,326	,394	,402

a. Dependent Variable: Entrepreneurial intentions.

## Linear regression for Perceived support of government

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Perceived support of government	.	Enter

a. Dependent Variable: Entrepreneurial intentions.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate	Change Statistics	
					R Change	F Change
1	,573 <sup>a</sup>	,329	,311	,849	,329	18,609

### Model Summary<sup>b</sup>

Model	Change Statistics		Sig. F Change
	df1	df2	
1	1	38	,000

a. Predictors: (Constant), Perceived support of government

b. Dependent Variable: Entrepreneurial intentions.

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13,404	1	13,404	18,609	,000 <sup>b</sup>
	Residual	27,371	38	,720		
	Total	40,775	39			

a. Dependent Variable: Entrepreneurial intentions.

b. Predictors: (Constant), Perceived support of government

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized	t
		B	Std. Error	Coefficients	
1	(Constant)	2,307	,431		5,349
	Perceived support of government	,456	,106	,573	4,314

### Coefficients<sup>a</sup>

Model		Sig.	95,0% Confidence Interval for B		Correlations
			Lower Bound	Upper Bound	Zero-order
1	(Constant)	,000	1,434	3,180	
	Perceived support of government	,000	,242	,670	,573

a. Dependent Variable: Entrepreneurial intentions.

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