The Effect of Entrepreneurial Education on Students' Career Ambitions Conducting ASTEE Questionnaire in Algerian Universities

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Abstract—In Algeria, the debate on the role of higher education is flourishing; it is very much concerned with meeting the needs of the labor market, youth unemployment rates, and promoting knowledge transfer between university and industry. Our study offered an overview of higher education system in Algeria, and tried to evaluate the influence of entrepreneurship courses taken at university and outside it on supporting student entrepreneurial intention.

This study was applied at the faculties of Business and Economics, in three Algerian universities, from November 2019 to January 2020, on a sample of 293 comprised students of the 1st to 3rd year.

By conducting the ASTEE questionnaire which contained 57 questions covering multiple dimensions including demographic questions, we confirmed that there were significant differences in all dimensions between Algerian entrepreneurially educated students and European entrepreneurially also non-entrepreneurially educated respondents, which explain the crucial role of university in promoting entrepreneurship. Our results affirmed that, unlike males, females tend to be innovative employees than being entrepreneurs.

Despite of the satisfactory result, Algeria is invited to be keener in the use of modern methods and in the use of specialized frameworks in teaching entrepreneurship. In addition Algeria should pay more concern to generalize entrepreneurial education in other specializations of university.

Index Terms—Entrepreneurial education; career ambition; ASTEE project; Algerian University.

I. INTRODUCTION

In recent years, entrepreneurship called as « innovative act, which includes endowing existing resources for new wealth-producing capacity », has played a major role towards job creation and contributed to economic growth and overall to national prosperity (OECD, 2012). Recent research has paid increasing attention to entrepreneurship promotion among university graduates (Liñán & Chen, 2006). For many, entrepreneurship, as a career choice, can be developed by entrepreneurial education program. So that, improvement of entrepreneurial education constitutes an important tool to develop entrepreneurship outcomes. This statement is highlighted by the World Bank (2008) which proved that entrepreneurial education is one of the vital factors to increase employment rate. In this way and according to Giacomini et al. (2011), « ...entrepreneurship education is important because entrepreneurial activities are a vital component of economic growth, innovation and employment ». It has been classified by Van Gelderen et al. (2015), « as one of the most

important components of entrepreneurship ecosystem to enhance intentionally and business creation stability ».

According to his important role on the improvement of entrepreneurial outcomes, this study aims to clarify the role of entrepreneurial education program on developing skills for entrepreneurship. In this way, we attempt to answer the following questions:

Main question: does the university have a role in encouraging the spirit of entrepreneurship among students

Sub-questions:

- A. Do students know about the Entrepreneurial Skills and knowledge?
- B. How do entrepreneurially educated students perceive themselves in term of Entrepreneurial Mindset and Attitudes?
- C. How may entrepreneurial education influence students' future professional life?

II. LITERATURE REVIEW

A. Defining entrepreneurship and entrepreneurial education

Entrepreneurship has been seen as a process, action or an activity to transform ideas and opportunity into a financial, cultural or social value for others. Therefore, it can be applied to all kinds of organizations.

Research had paid attention to define entrepreneurship. Gartner (1985) described it as the « creation of a new organization ». Drucker (1985) called entrepreneurship an « innovative act, which includes endowing existing resources for new wealth-producing capacity ». In this way, as for Carnier (1996) entrepreneurship represents « a primary source of innovation, may involve the development of new visions and business methods for established companies as well as the creation of new organizations ». As for Shane and Venkataraman (2000) entrepreneurship is « the discovery, evaluation and exploitation of an opportunity ».

For Entrepreneurship education, this concept, according to Fayolle et al., (2014) is related to « content, methods and activities supporting the creation and development of knowledge, competences and experiences that make it desirable and feasible for students to initiate and participate in entrepreneurial value creating processes ». McIntyre and Roche (1999) defines entrepreneurship education as « the process of passing the necessary skills and concepts to individuals to identify new business opportunities and to reach high level of self-confidence to benefit from such

opportunities ». As for McMullan and Long (1987) and McMullan et al. (2002) entrepreneurship education « should include skill-building and leadership programs, new product development, creative thinking, and technology innovation ». Furthermore, Maritz et al. (2015) defines entrepreneurship education as « any educational program or process of education for entrepreneurial manners and skills, which help in developing personal qualities ».

B. Promoting entrepreneurship among entrepreneurial education

According to Kuratko (2005) and Solomon (2007) entrepreneurship education programs in higher education have grown rapidly and globally. In this way, Lee, et al. (2005) education constitutes one of the vital factors distinguishing entrepreneurs from non-entrepreneurs. Giacomini et al. (2011) argue that, « ...entrepreneurship education is important because entrepreneurial activities are a vital component of economic growth, innovation and employment ». This growth reflects increasing recognition that university-based entrepreneurial education programs promise to support a range of potential entrepreneurial outcomes (Nabi & Liñán, 2011; Rideout & Gray, 2013).

So that, for Arenius and Minniti (2005), individuals with higher formal education are more likely to pursue entrepreneurial opportunities. As for Turke, Sulcek (2009): « ...getting an adequate education may foster entrepreneurial intention of a person ». This statement is supported by Pruett, et. al. (2009) who established that « one of the main barriers for entrepreneurial intention among students is the knowledge factor, including the lack of management, business, accountancy and administration knowledge, and this lack can be filled in due to education ».

Also, according to Davey et al. (2011) and Jones et al. (2011), entrepreneurial education has an impact on developing the entrepreneurship intentions and increase the knowledge and skills of individuals as well.

According to many researchers in entrepreneurship, participation in entrepreneurial education enhances the entrepreneurial self-efficacy of postgraduate students (Kubberd & Pettersen, 2017; Wilson, Kickul, & Marlino, 2007; Zhao et al., 2005), undergraduate students (Byabashaija & Katano, 2011; Gielnik, Uy, Funken, & Bischoff, 2017; Karlsson & Moberg, 2013; Nowiński, Haddoud, Lančarič, Egerová, & Czeglédi, 2017), high school students (Sanchez, 2013), and the general population (Kerrick, Cumberland, & Choi, 2016; Lee et al., 2016). In this way, Zaho et al (2005) based on social cognitive theory (Bandura, 1997) argue that entrepreneurial education provides opportunities for mastery experiences, vicarious learning, social persuasion, and judgments of one's own physiological state.

As for to Solesvik (2013), students with enterprise courses have a higher perceived entrepreneurial motivation than the students without enterprise courses. Also, for Pickernell et al. (2011), entrepreneurship education support graduates to become good entrepreneurs and adopt entrepreneurship as a career choice (Wilson, Kickul & Marlino, 2007). Saeed, Yousafzai, Yani-De-Soriano, and Muffatto (2015) argue that a significant relationship exists between students' perceptions of educational support for entrepreneurship, support for business development, support for concept development, and institutional support for entrepreneurship and their ESE.

Furthermore, entrepreneurship education represent a major tool to increase entrepreneurial attitudes of both potential and nascent entrepreneurs (Liñán et al., 2010).

Rae (1997) suggests that « ... the skills traditionally taught in business schools are essential but not sufficient to make a successful entrepreneur ». In this way, levels of entrepreneurship skills can be reached through education (European Commission, 2006) and especially entrepreneurship education. So that, education plays a crucial role in developing students' entrepreneurial skills through involving them in various entrepreneurial activities and increasing their desirability to step into venture creation (Segal, Borgia & Schoenfeld, 2005).

As a conclusion, recently, many researches prove the impact of entrepreneurial education on the development of entrepreneurial (Dickson, Solomon, & Weaver, 2008; Fayolle, 2013; Martin, McNally, & Kay, 2013; Thompson, Jones-Evans, & Kwong, 2010).

The present study adapted ASSESSMENT TOOLS AND INDICATORS FOR ENTREPRENEURSHIP EDUCATION (ASTEE) project, which was applied in thirteen European countries. Moberg et al. 2014

The aim of ASTEE measurement tools was to develop a generic tool that can be applied in many different settings on many different students. The assessment tool required very minimal effort to administrate and assess the results. It includes multiple dimensions that affect the respondent intention (figure 1 below) as well as a number of demographic questions. Some of the dimensions are measured by several constructs of questions. The dimension "Entrepreneurial skills" covers both cognitive and non-cognitive skills. The "Entrepreneurial mindset" is measured by the validated Core Self Evaluation measure. The dimension "Entrepreneurial knowledge" is measured by a single construct, which focuses on the respondent's perceived knowledge about entrepreneurship. The dimension "Connectedness to future career" includes questions about the student's enterprising activities, work experience, preference for intrapreneurial work assignments as well as intentions to start up a company.

Fig 1. EU Framework for elements of entrepreneurial education
(Adapted from Moberg et al., 2014)

III. HIGHER EDUCATION IN ALGERIA

Algeria has a large public higher education system, closely modeled off of the French system; Access to higher education in Algeria is guaranteed to all secondary school graduates and

there are no tuition fees, although students do pay small matriculation fees. This system comprises 106 institutions covering 48 states across the national territory, according to the statistics of the Ministry of Higher Education and Scientific Research for the year 2017, from universities, centers, high schools in addition to a good number of scientific centers and research laboratories, what is detailed in the table (I) below.

TABLE I. DISTRIBUTION OF HIGHER EDUCATION INSTITUTIONS

Unive rsity	Unive rsity Cente r	Nati onal High Scho ol	Resear ch Labor atory	Specia lized higher school s	High Schoo l for Profes sors	Rese arch cente r	attache d univers ity
02	30	11	12	1000	20	13	50

Algerian Ministry of Higher Education and Scientific Research on the site dated 12/10/2019. <https://www.mesrs.dz/ar/universites>

Working at these institutions: 53 457 teacher in 2013/2014 academic season, the number increased by 2449 teacher in the following university season, and the total number of teachers reached 57,729 in the 2015/2016 academic season; the Table No. 02 explains the distribution of permanent teachers, the participants and the foreign teachers.

TABLE II. PEDAGOGICAL FRAMING

Teachers/Years	Academic season 2014	Academic season 2015	Academic season 2016
Permanent professors	51 299	53 622	60515
Foreign professors	107	93	72
Associate professors	2 158	2 284	1 668

O.N.S, Algeria in numbers N °: 46, edition: 2016, P30

Table III shows that the number of students enrolled in the gradual and post-graduation stages and the number of graduating students is constantly increasing in recent years; this constitutes a challenge for the university. Algeria seeks to overcome it and to provide its human resource in general with knowledge and the necessary skills; and for this, plans were adopted, (1998-2002 plan) and (2008-2012 plan), where they aimed to achieve economic, social, scientific and technological development and advance to sustainable development in the country, and this is by setting ambitious goals and providing the financial and human resources to achieve them.

TABLE III. REGISTERED AND GRADUATES STUDENTS

Students /Years	Academic season 2014	Academic season 2015	Academic season 2016
Students enrolled in the graduation phase	1119 515	1165 040	1315 744
post-graduation Students	70 734	76 510	76 961
Graduated students	271 430	311 976	360523

O.N.S, Algeria in numbers N °: 46, edition: 2016, P30

IV.METHODOLOGY AND FINDINGS

The survey questionnaire consisted of four sections. Demographic questions in Section A); In Section B respondents were asked the following about their entrepreneurial skills: creativity, planning, financial literacy, resource marshalling, managing ambiguity. Sections C and D provided the entrepreneurial knowledge then Mindset (self-evaluation, attitudes); finally we tackled their carrier ambition.

With minor modifications we translated the ASTEE questionnaire into French and Arabic to meet the sample requirement.

A total of 293 questionnaires have been considered for evaluation and 17 questionnaires could not be considered as due to incomplete answers.

Responses to the study questionnaire were selected according to Likert scale, where: 1=strongly disagree, 2= disagree, 3= somewhat disagree, 4= neither agree nor disagree, and 5= somewhat agree, 6= agree, and 7=strongly agree.

TABLE IV. SAMPLE CHARACTERISTICS

Number of respondents in the analyses	293
Females	44%
Males	56%
Parents have a university degree:	35.4%
Has anyone close to you started a company:	
Mother	3.1 %
Father	24.7 %
Other relative	30.6 %
Friend	22.1 %
No	39.5 %
Have participated in an entrepreneurship course	100 %
Have participated in extracurricular activities focusing on entrepreneurship	40.4 %
Participate in volunteer work	18.1 %
Exchange student	0.8 %
Years of part-time work experience:	
0	34.5 %
Under 2	27.9 %
3-5	29.8 %
6-8	5.9 %
Over 8	1.9 %
Years of full-time work experience:	
0	63.4 %
Under 2	29.6%
3-5	4.9%
6-8	1.1 %
Over 8	1 %

As can be seen from the data in Table IV, the number of male students 164 exceeds the number of female in the sample with a difference of 35 students. Over than 60% of the respondents have an idea about companies and projects either through parents, relatives or friends. Students who experienced part and full -time work represent a considerable percentage; all students in our sample participated in entrepreneurship courses at university in addition to that 40.4 % of them participated in extracurricular activities focusing on entrepreneurship.

V.THE RESEARCH HYPOTHESES

Our study based on the comparison between the entrepreneurially educated students (group of 557

respondents) and non-entrepreneurially educated students (group of 426 respondents) in ASTEE sample with the Algerian entrepreneurially educated students (group of 293 respondents). Thus, by using the sample students' mean average of the two ASTEE groups we will be able to assess whether Algerian students are below or above the average.

TABLE V. COMPARISON BETWEEN THE ALGERIAN STUDENTS AND THE ASTEE SAMPLE

Variables	Ent-Edu (n=557)	Ent-Edu (n=293)	Non-Ent (n=426)	Edu
	Mean 95% CI	Mean 95% CI	Mean 95% CI	
Entrepreneurial Skills				
Creativity	5.24 [5.15 5.33]	5.26 [5.06 5.47]	4.94 [4.84 5.04]	
Planning	5.31 [5.22 5.40]	5.16 [5.11 5.21]	5.02 [5.13]	
Financial Literacy	4.61 [4.51 4.71]	5.28 [5.05 5.51]	4.37 [4.48]	
Marshalling of Resources	5.36 [5.26 5.45]	5.32 [5.17 5.47]	5.13 [5.02 5.24]	
Managing Ambiguity	5.41 [5.33 5.50]	5.20 [5.16 5.24]	5.11 [5.00 5.21]	
Entrepreneurial knowledge	5.96 [5.87 6.04]	5.61 [5.27 5.95]	5.47 [5.36 5.58]	
Mindset				
Entrepreneurial Mindset	5.12 [5.03 5.20]	5.45 [5.30 5.60]	4.82 [4.71 4.92]	
Core self-evaluation	5.46 [5.39 5.54]	5.59 [5.21 5.97]	5.25 [5.15 5.35]	
Entrepreneurial Attitudes	5.62 [5.51 5.73]	5.72 [5.55 5.89]	5.40 [5.28 5.53]	
Career Ambitions				
Entrepreneurial Intentions	4.55 [4.40 4.70]	5.43 [5.13 5.73]	4.11 [4.27]	
Innovative Employee	5.76 [5.61 5.90]	5.52 [5.28 5.76]	5.46 [5.35 5.56]	

Results in Table V show the following:

H1. *There are no differences between Algerian entrepreneurially educated students and European non-entrepreneurially educated respondents*

We answer the first hypothesis by confirming that there are significant differences in all items between Algerian entrepreneurially educated students and European non-entrepreneurially educated respondents;

H2. *Algerian and European entrepreneurially educated respondents differ in the entrepreneurial skills dimension*

Moving to the second hypothesis, we notice that the Algerian students score higher in Financial Literacy, while the ASTEE sample was better in Managing Ambiguity and Planning, concerning Creativity and Marshalling of Resources the two groups were close to each other with a small differences,

H3. *Algerian and European entrepreneurially educated respondents differ in the Entrepreneurial Knowledge dimension*

In Entrepreneurial knowledge dimension a difference of 0.35 was marked for the ASTEE sample;

H4. *Algerian and European entrepreneurially educated respondents differ in the Entrepreneurial Mindset dimension*

A very encouraging result is that, Algerian students do perceive themselves significantly and positively different than the European entrepreneurially educated sample in term of Entrepreneurial Mindset, Core self-evaluation and Entrepreneurial Attitudes;

H5. *Algerian and European entrepreneurially educated respondents differ in their Ambitions*

Talking about student's future career, Algerian students have Entrepreneurial Intentions in contrast to European respondents who prefer being innovative employees, which may be explained by encouragement and opportunities given to European employees in both public and private sectors.

H6. *There is no difference between male and female respondents within our sample*

To test the last hypothesis, we compared the responses of males and females. The results are presented in Table VI.

TABLE VI. GENDER EFFECTS

Variable	Male (N=164)	Female (N=129)	T test P
Skills			
Creativity	5.165	5.368	0.210
Planning	5.171	5.163	0.989
Financial literacy	5.197	5.367	0.512
Marshalling of resources	5.231	5.422	0.420
Managing ambiguity	5.230	5.187	0.870
Entrepreneurial knowledge	5.551	5.670	0.550
Mindset			
Entrepreneurial Mindset	5.520	5.386	0.540
Core self-evaluation	5.540	5.648	0.609
Entrepreneurial Attitudes	5.570	5.876	0.190
Career Ambitions			
Entrepreneurial intentions	5.685	5.185	0.003
Innovative Employee	5.326	5.720	0.018

The mean averages of the entrepreneurship females and males students, non-entrepreneurship students,

The p-coefficients for a t-test (95%) corroborate the idea of no significant gender related differences for most of the dimensions elicited, with the exception of Entrepreneurial intentions, and Innovative Employee, which support the idea that females are more creative in ordinary jobs of government and private sectors.

VI. DISCUSSION AND CONCLUSION

Algeria as many countries suffers from high youth unemployment rates, government does not provide neither jobs that absorb the large number of university graduates, nor that meet the needs of the labor market. From our study results' we notice the tendency of university student to create their own projects that match Giacomini et al (2011) ideas.

Our results support Arenius and Minniti (2005), Turke, Sulcek (2009), Pruett, et. al. (2009), Pickernellet al., (2011), (Wilson, Kickul&Marlino, 2007) findings in which Students with adequate education are more interested in following entrepreneurial ventures and adopted entrepreneurship as a career choice, and (Nabi&Liñ an, 2011; Rideout& Gray, 2013), Lee, et al. (2005) who established that entrepreneurial education programs promise to support a range of potential entrepreneurial outcomes.

During our follow up to the field study, a large number of students interacted with us in a positive and enthusiastic way, they were confident when answering questions and showed convinced that they have sufficient knowledge and skills, so many barriers fall due to education ; it is consistent with what Pruett, et. al. (2009) concluded

More future studies in different regions in the country may confirm our result that indicates the existence of differences in career ambitions where male students with

entrepreneurship courses have a higher perceived entrepreneurial intention to create their own projects.

Finally, Algeria have to focus on the fact that the knowledge and skills traditionally taught in separated courses and programs in business and economics departments are essential but not sufficient to make a successful entrepreneur.

In addition, more concern should be paid to generalizing entrepreneurial education in other specializations of university.

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