

# STUDENTS' ATTITUDE TOWARDS ENTREPRENEURSHIP AT PRINCESS SUMAYA UNIVERSITY FOR TECHNOLOGY

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## ABSTRACT

**Purpose:** *This study explored the factors affecting students' attitude towards entrepreneurship at Princess Sumaya University for Technology (PSUT) by focusing on entrepreneurial awareness, entrepreneurial characteristics, and the impact of entrepreneurship on the individual and the society.*

**Methodology:** *The data of this research was collected through distributing a survey among students of different majors at PSUT and a statistical analysis was conducted using Chi-square test.*

**Findings:** *The students at Princess Sumaya University for Technology have significant differences as to their attitudes towards entrepreneurship based on demographic characteristics in addition to a high level of awareness towards entrepreneurship. They also perceive the effect of entrepreneurship on the individual and the society positively.*

**Research Limitations/Implications:** *The study was restricted to the students at Princess Sumaya University for Technology generating focused conclusions and recommendations which may be widely generalized.*

**Originality/Value:** *The significance of this research was enhanced by the scarcity of exploratory research on Jordanian university students' attitude towards entrepreneurship. The research also proposed suggestions to PSUT's administrators for enhancing entrepreneurship at the university based on the results of the study.*

**Keywords:** Entrepreneurship, Jordan, Universities, Entrepreneurial Education, Chi-Square.

## INTRODUCTION

Researchers have introduced many attempts in identifying the factors affecting entrepreneurship attitudes among students; for example, Fayolle and Gailly (2015) studied the influence of Entrepreneurship Education Programs (EEPs) on participants' attitudes and intention toward entrepreneurship; they found that EEPs effects were more marked when participants had less previous entrepreneurial exposure, whereas significant counter effects were highlighted when students had been previously significantly exposed to entrepreneurship. Another research has revealed the effect of specific benefits for the students derived from the entrepreneurship education program (Sánchez, 2013). Additionally, Volery et al. (2013) concluded that entrepreneurship education has a positive, albeit limited impact on human-capital

assets. The positive outcomes of entrepreneurship education programs for students along with contemporary trends in educational evaluation in terms of the challenges associated with the assessment of these programs were studied by Duval-Couetil (2013).

The scarcity of research in the field of entrepreneurship education in the Jordanian society has oriented this research paper towards discovering the factors affecting students' attitude towards entrepreneurship in one of the top technology universities in Jordan (Princess Sumaya University for Technology–PSUT) since it was the first university in Jordan that has introduced teaching entrepreneurship as a major in the form of a masters degree in Business Entrepreneurship. The strength of this university in the field of entrepreneurship was also backed-up by having a business incubator in campus (Queen Rania Center for Entrepreneurship–QRCE) and having an agreement with a business accelerator (Oasis500).

## RESEARCH OBJECTIVES AND ITS SIGNIFICANCE

Since exploratory research on Jordanian university students' attitude towards entrepreneurship is scarce, this study aims to explore the attitude of senior and graduate students of Princess Sumaya University for Technology towards entrepreneurship. This research focuses on entrepreneurial awareness, entrepreneurial characteristics, and the impact of entrepreneurship on the individual and the society.

Accordingly, the objectives of this study include the following:

1. Introducing theoretical background on entrepreneurship education.
2. Reviewing the status of entrepreneurship education in Jordan with a special focus on PSUT.
3. Determining the major factors that affect the students' attitude towards entrepreneurship at PSUT through three major factors: students' awareness towards entrepreneurship, students' perception towards the effect of entrepreneurship on the individual, and students' perception towards the effect of entrepreneurship on the society.

This research is significant since it adds knowledge and insight to the attitudes of Jordanian students towards entrepreneurship. It contributes to the current literature on entrepreneurship in Jordan and the developing countries. It helps administrators at the universities to pinpoint the major factors affecting students' attitude towards entrepreneurship; therefore, it facilitates their decisions regarding entrepreneurship education in terms of curriculum development, training courses, events, and other activities. Finally this research can be built upon for future researches to be applied on other universities.

## RESEARCH QUESTIONS

This research attempts to answer the following questions:

1. Do PSUT students perceive entrepreneurship differently according to their demographic characteristics (gender, age, financial status, level of education, work status, and major of study, parents' own business)?
2. How do PSUT students perceive the effect of entrepreneurship on the individual's life and on the society?

Answering these questions would provide insight into the major factors that affect the students' attitude towards entrepreneurship at PSUT which would lead to proposing suggestions to PSUT's administrators for enhancing entrepreneurship at the university.

## LITERATURE REVIEW

### Entrepreneurship Education

Entrepreneurship is a wide spread term which has been studied from different aspects and points of view, and its literature can be found in every discipline related to humans and their behavior (Campbell and Mitchell, 2012). The concept was found in old literature and defined in various ways (Bernstein, 2011), ranging from simply the creation of a new venture (Kirzner, 1997), to leaving the definition of entrepreneurship entirely to the entrepreneurs and their actions (Miller and Collier, 2010).

The importance of entrepreneurship increases the responsibility of universities in providing students with adequate entrepreneurial skills and mindset, which is needed to supply the countries with valuable entrepreneurs who would establish entrepreneurial companies and start-ups, which gradually affect the economic stability of the country since entrepreneurship proved to be essential for the development and renewal of the economy through the creation of new innovative markets and the modernization of society (Najim et al., 2013). Entrepreneurship also contributes to the national economy and increases the economic efficiency through job creation which leads to sustaining employment levels (Al-Mohammad, 2010).

The role of universities in crystallizing the concept of entrepreneurship was coined in many researches; one of which has found that studying an entrepreneurship major increases the students' willingness of starting a new business in addition to increasing the entrepreneurial intentions of the students (Kolvereid and Moen, 1997). Another research concluded that the entrepreneurial orientation can be affected greatly by the education process since universities can encourage students' creativity, increase tolerance for ambiguity, and enhance risk assessment techniques to enable students to recognize and take advantage of opportunities (Frank et al., 2005). Entrepreneurial education also has a positive impact on student's immediate entrepreneurial intentions (Jones et al., 2008). On the other hand, Chrisman et al. (2012) found out that entrepreneurship courses do not have a significant impact on the venture and performance but have an impact on venture creation; this can mean that entrepreneurship courses can work as a motivating factor for students to start their businesses but cannot help them throughout the later stages of the entrepreneurial process. Although entrepreneurial education in universities is criticized for being theoretical, educationalists can offer entrepreneurial insight for students to influence their choice of entrepreneurship as a career (Henderson and Robertson, 2000).

However, universities were criticized for not being really active in this field, although some universities have technology parks most of them treat these parks as mere real estate projects ignoring their potential benefits in creating a risk taking environment between students and focusing too much on cost and review management. This was mainly attributed to the lack of understanding of the importance of these parks and thinking that they are just a way to generate a supplementary income, while looking at the training that students get as a bonus (Kharabsheh et al., 2011). A Spanish study has shown that the low attention given by universities to entrepreneurship could lead to harmful consequences affecting the future of entrepreneurship; these can include the low awareness among students towards the potential economic, personal, and social outcomes of starting their own businesses, in addition to not feeling completely qualified to become entrepreneurs; which leads to supplying the market with graduates lacking the required skills for building a productive society (Luis et al., 2011).

## Entrepreneurship Education in Jordan

Jordan is a developing country which requires economic development, and since entrepreneurship is a way of boosting the economy the Jordanian market is filled with entrepreneurial initiatives, companies, and competitions which are supporting start-ups and increasing the awareness towards entrepreneurship among people in different ways. These initiatives include: Oasis500, Trip to Innovation, Tamweelcom Jordan Micro Credit Company, Earnst and Young Entrepreneur of the Year, Ahli Micro Finance Company, National Micro Finance Bank, El Hassan Business Park, Queen Rania Center for Entrepreneurship, Queen Rania National Entrepreneurship Competition, and many others. Some of these are incubators which provide training, mentoring, networking and financing for entrepreneurs, while others merely provide the finance or just guidance.

Princess Sumaya University for Technology (PSUT) is a good example of a Jordanian university which added the entrepreneurial education to the curricula of undergraduate students by creating two courses (Introduction to Entrepreneurship, and Entrepreneurship & Innovation) in an effort to achieve two objectives:

1. To develop an understanding of entrepreneurial behavior and the potential outcomes and benefits in any context.
2. To evaluate the specific issues involved in creating, planning, developing and managing the entrepreneurial small business (Bawaneh, 2012).

The university also introduced the Master of Business Entrepreneurship for the graduate level because it believes that developing an understanding of the fundamental principles underlying technology translation among students will prepare them not just for their first launch, but for a future rich with new ventures. Furthermore, PSUT has partnered with El Hassan Business Park (EHBP) of El Hassan Science City which includes four organizations:

1. Queen Rania Center for Entrepreneurship.
2. iPARK.
3. Intellectual Property Commercialization Office.
4. Bedaya Business Angles Network, all of which work to turn ideas into sustainable businesses, create jobs and contribute to the social, environmental and economic development of Jordan.

The Ministry of Education in Jordan is also supporting entrepreneurial education through the “*Educational Innovation Fund*” which was established in 2004 to improve the educational environment, link education and life, upgrade the efficiency of the education system, and encourage and universalize innovations (Masri et al., 2010).

## Students’ Entrepreneurship

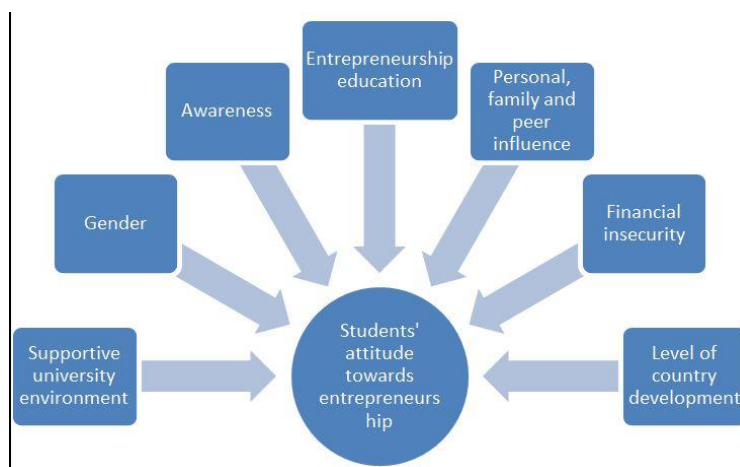
Students’ attitude towards entrepreneurship was studied in several countries, each study focused on a number of variables and how they affect the attitude of students towards entrepreneurship. In UAE, Majumdar and Varadarajan (2013) studied the effect of gender on the entrepreneurial intention among students, what brought their attention to conducting this study is the gap between female students’ high academic results compared to their low employment rate. The study found that gender does not affect entrepreneurial intention, however, it concluded that there are several factors, which sharply affect entrepreneurial intention. Awareness was one of the most important factors affecting students’ attitude towards entrepreneurship. On the other

hand, a study which was conducted on 3,420 university students in more than ten countries found that gender has a great effect on students' attitude towards entrepreneurship. It concluded that female students are less willing to start their own businesses (Dabic et al., 2009). According to Turker and Selcuk (2009) a supportive university environment that provides adequate knowledge and inspiration for entrepreneurship is one of the key factors affecting students' entrepreneurial intention resulting in an increase in choosing an entrepreneurial career among young people, furthermore, educational support proved to have more impact on entrepreneurial intentions than structural support, which stresses the importance of entrepreneurship education in fostering the entrepreneurial activities in the economy.

Anabela et al. (2013) have studied other factors influencing entrepreneurial intention including locus of control, need for achievement, tolerance to ambiguity, and innovativeness. They found out that these factors are not related with intentions to start a business. On the same hand, Sesen (2013) found out that the relationship between students' need for achievement, access to business information, and university's supportive environment from one side and the entrepreneurial intention from the other side is not significant. On the other hand, others recommended incorporating these factors into entrepreneurship education (Neck and Greene, 2011). Additionally, another study has concluded that a number of personal, family and peer influences could affect the entrepreneurial aspiration and potential of business school graduates (Matlay, 2005). On the same hand, financial security was also considered an important factor affecting students' entrepreneurial intentions; Gelderen et al. (2008) concluded that students are usually discouraged by a fear of financial insecurity. On the contrary, the low level of country development was described as a positive factor affecting students' entrepreneurial intention; i.e. the less the development of a country, the more its students are willing to start their own businesses (Davey et al., 2011, Nabi and Liñán, 2011).

Attitude towards entrepreneurial behavior is a strong determinant of entrepreneurial intention and potential (Guzmán-Alfonso and Guzmán-Cuevas, 2012); therefore it is important to know what affects students' attitude towards entrepreneurship and how to increase their entrepreneurial intention since they will be the new generation of entrepreneurs and the wheel of economy will be moved by them in the near future. Although entrepreneurship education does not seem to be giving students the required outcomes, a research has shown that most of the graduate entrepreneurs seem to be satisfied with the outcomes of the entrepreneurship education they have taken, both in relative and in absolute terms (Matlay, 2008). Furthermore, Chrisman et al. (2012) found out that entrepreneurship courses do not affect the venture's performance, but they affect venture creation.

Figure 1 summarizes the factors that affect students' attitude towards entrepreneurship based on the literature.



**FIGURE 1**  
**FACTORS AFFECTING STUDENTS' ATTITUDE TOWARDS ENTREPRENEURSHIP**

### HYPOTHESES OF THE STUDY

The following hypotheses are formulated based on the literature review:

1. PSUT students have significant differences as to their attitudes towards entrepreneurship based on demographic characteristics (gender, age, financial status, level of education, work status, and major of study, parents' own business).
2. PSUT students have a high level of awareness towards entrepreneurship.
3. PSUT students perceive entrepreneurship effect on the individual positively.
4. PSUT students perceive entrepreneurship effect on the society positively.

### METHODS

The data of this research was collected through distributing a survey among students of different majors at Princess Sumaya University for Technology using both Google Forms and in class surveys; the survey was completed by 311 students from all the majors at PSUT which is a good number for such a small university. The questions of the survey were adopted from Curry (2012) after editing the questions to be suitable for the research environment. The survey used in this research included 16 demographic questions along with 25 questions in the form of a 7-points Likert scale ranging between: (1) strongly agree and (7) strongly disagree. The survey was divided into four sections; the first section included the demographic factors of the students; the second section included questions about the students' awareness towards entrepreneurship; the third section focused on the students' perception of the effect of entrepreneurship on both the individual and the society; and the fourth section dealt with characteristics of the entrepreneurs.

#### The Population and Sample of the Study

The population of this study comprises of all students enrolled in both bachelor and master programs at PSUT; the choice of PSUT was due to the interest of the university in entrepreneurship education as it has the first master in entrepreneurship in Jordan in addition to having in campus entrepreneurship supporters such as iPark. The study was conducted through

the academic year 2013-2014. In that academic year the total number of students at PSUT were 2988; 2794 of them were undergraduate students and 194 of them were master students based on the internal reports requested from the admission and registration department. The respondents were selected randomly through distributing the survey on the internet using the official social media channels of the university focusing mainly Facebook, in addition to printing paper copies of the survey and distributing them inside the classes after taking the permission of the lecturers to ensure clarity of the questionnaire. The survey was completed by 311 students from the different majors at the university; this sample represents 10% of the university students. The respondents represented the various majors of study in the university including Business Administration, E-marketing, Management Information Systems, Accounting, Software Engineering, Electronics Engineering, Communications Engineering, Computer Engineering, Power and Energy Engineering, Computer Science, Animation, Master of Business Entrepreneurship MBE, Electrical Engineering M.Sc., Computer Science M.Sc., and IT Security & Digital Criminology M.Sc. The respondents according to the majors are detailed as follows in Table 1.

<b>Major</b>	<b>No. of respondents</b>	<b>Percentage</b>
Business Administration	51	0.164
E-marketing	54	0.174
MIS	6	0.019
Accounting	88	0.283
Electronics engineering	11	0.035
Communications engineering	38	0.122
Computer engineering	19	0.061
Power and energy engineering	6	0.019
CS	5	0.016
Animation	6	0.019
Business Entrepreneurship MBE	12	0.039
Electrical Engineering M. Sc.	3	0.01
Computer Science M.Sc.	2	0.006
IT Security & Digital Criminology M.Sc.	2	0.006
Software Engineering	8	0.026

### Measuring Variables

This study focused on the following variables:

1. Student's awareness towards entrepreneurship: do students know what entrepreneurship means? Where have they known about entrepreneurship? Do they attend entrepreneurship events or read entrepreneurship books?
2. Demographic variables: gender, age, financial status, level of education, work status, and major of study, parents' own business.
3. Students' perceptions of entrepreneurship's effect on the individual.
4. Students' perceptions of entrepreneurship's effect on the society.

## Statistical Analysis

SPSS program (version 21) was used for data analysis through applying descriptive statistics to display the data in a meaningful way and chi-square method to test hypotheses and determine whether there is a significant relationship between the variables.

## RESULTS AND DISCUSSION

### Demographic Characteristics

The respondents were from both genders as 48.2% of the respondents were males while 51.8% of them were females. 87.8% of the respondents' ages ranged between 18-22, while the rest of the respondents were aged between 23-53; this is due to the difference in the educational level as 92.9% of the respondents were bachelor students and 7.1% of them were master students. The large difference in the number of bachelor students compared to master students was due to the percentage of master students studying at PSUT which is much less than bachelor students; in addition to the number of bachelor programs compared to the master programs at the university. Most of the respondents (80.7%) have finished their high school education from private schools and 87.1% of them attended the national (Tawjihi) program. Table 1 summarizes the majors which were included in this survey and the percentage of respondents in each major. The year of study of the respondents varied from the first to the fifth years in the following percentages: 10% first year, 23.2% second year, 24.1% third year, 31.5% fourth year and 4.5% fifth year; the fifth year had the least percentage since it applies only on engineering majors, while the master students who represented 6.8% of the respondents were excluded from this question because their programs are for two years only.

Due to the difference in both age and educational level among respondents; 71.4% of them were full time students and were not employed, 7.4% were full time students employed full time (mainly master students because their lectures started in the evening), and 21.2% were full time students employed part time. On the same hand, 37.3% of the respondents' fathers ran their own companies, and 81.4% of them worked in the private sector, while 93.9% of their mothers were housewives.

The respondents seemed to reflect some awareness towards entrepreneurship; when they were asked where they have learnt about entrepreneurship; the college was the main source for 74% of them. On the same hand, 61.4% of them learnt about business ownership from college as a main source. This shows the important role of universities in spreading the entrepreneurial knowledge among their students; especially that 77.2% of the respondents said they have never take a specialized course in entrepreneurship, and 70.1% of them said they have never read books or articles about entrepreneurship or innovation. On the same hand, 74% of the respondents said they do not usually participate in conferences/lectures/workshops on entrepreneurship and/or innovation. This can be due to the lack of knowledge regarding when and where these events take place, or due not having enough information regarding the importance of entrepreneurship and its effect on both individuals and societies. This result is questionable as it has two faces; either the students have low interest in entrepreneurship, or there is little awareness spread about entrepreneurship among these students; this will be measured during the analysis, but it is also worth mentioning that we tested this through holding an entrepreneurship event at PSUT (the entrepreneurship day) and it was one of the most successful events in terms of students' participation which led us to make a follow up event (the



business model completion) to support that large number of students who were interested in entrepreneurship and were willing to start their own businesses; these students were from the different majors at the university. Many students participated in the business model competition by providing interesting business models and getting supportive feedback from professionals along with university professors for enhancing their business models. Table 2 summarizes the demographic characteristics of the respondents.

<b>Variable</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
Age	18-22	273	87.80%
	23-29	30	9.60%
	30-41	5	1.60%
	42-53	3	1%
Gender	Male	150	48.20%
	Female	161	51.80%
Type of secondary examination	Tawjihi	271	87.10%
	IGCSE	32	10.30%
	SAT	8	2.60%
Type of high school	Public	60	19.30%
	Private	251	80.70%
Level of education	Bachelor student	290	93.20%
	Master student	21	6.80%
Year of study	First year	31	10.70%
	Second year	72	24.80%
	Third year	75	25.90%
	Fourth year	98	33.80%
	Fifth year	14	4.80%
Work status	Full time student not employed	222	71.40%
	Full time student employed full time	23	7.40%
	Full time student employed part time	66	21.20%
Father runs his own company	Yes	116	37.30%
	No	195	62.70%
Mother runs her own company	Yes	19	6.10%
	No	292	93.90%
Type of sector for father's job	Public Sector	58	18.60%
	Private Sector	253	81.40%
Learned about entrepreneurship from	High School	106	34.10%
	College	230	74%
	Other	30	9.60%

Learned about business ownership from	Family	161	51.80%
	Friends	85	27.30%
	High School	88	28.30%
	College	191	61.40%
	Other	26	8.40%
Took a specialized course in entrepreneurship	Yes	71	22.80%
	No	240	77.20%
Regularly read books/articles about entrepreneurship/innovation	Yes	93	29.90%
	No	218	70.10%
Regularly participate regularly in conferences/lectures/workshops on entrepreneurship and/or innovation	Yes	81	26.00%
	No	230	74.00%

As shown in Table 3 which gives an indication of the respondents' level of awareness towards entrepreneurship; the students thought that entrepreneurship is strongly related to owning and managing a business (34.4%), they also understood the importance of the personal qualities in entrepreneurship (33.2%). Additionally, the respondents understood the role of creativity and idea generation in entrepreneurship (35%). On the same hand, 33.8% of the respondents stressed on the importance of being open to new technologies and innovations around the world as a key for being a successful entrepreneur. The interest of the respondents in entrepreneurship events (42.8%) showed some positive attitude towards entrepreneurship.

**Table 3**  
**STUDENT'S AWARENESS TOWARDS ENTREPRENEURSHIP (in %)**

No.	Question	Strongly Agree	Mostly agree	Agree Somewhat	Indifference	Disagree Somewhat	Mostly disagree	Strongly Disagree	Mean	Standard Deviation
<b>I perceive that entrepreneurship</b>										
1	Means owning and managing a business.	34.40%	15.80%	20.30%	17.70%	5.10%	3.20%	3.50%	2.672	1.63485
2	Is about the application of personal qualities such as creativity, innovativeness, and imagination in business.	33.10%	25.10%	17.00%	15.40%	4.20%	2.30%	2.90%	2.508	1.52583
3	Involves the generation of an idea for a new product, service, or recognition of an opportunity.	35.40%	24.40%	16.10%	13.50%	4.80%	4.20%	1.60%	2.4695	1.53188
4	Offers an understanding of how opportunities to create something new arise.	29.60%	26.00%	15.10%	16.70%	7.40%	4.20%	1.00%	2.627	1.51842
6	Is a learned competency rather than an inherited characteristic.	20.30%	16.10%	21.20%	23.80%	10.30%	5.10%	3.20%	3.1608	1.6064

9	Allows for resources to be used fairly for desired consumers	19.60%	22.80%	25.10%	19.60%	5.80%	4.20%	2.90%	2.9325	1.5108
<b>I perceive that an entrepreneur</b>										
12	Starts a new business venture or owns a business.	34.40%	20.90%	15.80%	16.40%	6.10%	1.60%	4.80%	2.6302	1.66799
13	Enjoys seeing a technology or an invention go out as a product/service into the world.	33.80%	25.40%	15.10%	16.40%	4.50%	2.30%	2.60%	2.4952	1.52161
14	Has the freedom to accept or refuse being told what to do.	23.80%	23.80%	16.70%	20.60%	9.00%	1.90%	4.20%	2.8971	1.61116
<b>I perceive</b>										
18	New events and activities in a positive way.	42.80%	21.50%	14.80%	11.30%	5.10%	1.60%	2.90%	2.3087	1.54332
19	My interactions with people in different situations rarely allow me to gain information.	18.00%	16.10%	15.40%	21.20%	10.60%	8.70%	10.00%	3.5627	1.89441
20	An entrepreneurial opportunity is a situation in which I can exploit a business idea.	26.00%	23.50%	23.20%	17.00%	5.10%	3.20%	1.90%	2.6913	1.47053
22	Entrepreneurial opportunities exist because people differ in their experiences.	20.30%	19.90%	24.10%	19.30%	9.00%	4.20%	3.20%	3.0225	1.56869
23	Entrepreneurial opportunities exist because people differ in their reception of information.	19.60%	26.40%	19.00%	18.30%	8.00%	3.50%	5.10%	3	1.64415

The respondents reflected a positive attitude towards the effect of entrepreneurship on the individual as summarized in Table 4. Improving quality of the life of an entrepreneur was perceived as a benefit of entrepreneurship by 34.1% of the respondents, on the same hand, 31.8% of them thought that an entrepreneur has a positive image within the society and community. However, 14.5% of the respondents strongly agreed that being an entrepreneur exposes the person to restlessness in addition to keeping him from learning and trying new things.

**Table 4**  
**ENTREPRENEURSHIP EFFECT ON THE INDIVIDUAL (IN %)**

No.	Question	Strongly Agree	Agree	Agree Somewhat	Indifference	Disagree Somewhat	Disagree	Strongly Disagree	Mean	Standard Deviation
<b>I perceive that entrepreneurship</b>										
5	Affords an individual the opportunity to aim for financial independence	0.222	0.219	0.206	0.203	0.077	0.045	0.029	2.9453	1.57815
7	May improve one's quality of life.	0.341	0.232	0.164	0.145	0.045	0.042	0.032	2.5756	1.62439
8	Raises one's standard of living.	0.248	0.273	0.18	0.167	0.074	0.035	0.023	2.7428	1.53184
<b>I perceive that an entrepreneur</b>										
15	Frequently experiences a restlessness that keeps them from learning and trying new things.	0.145	0.219	0.167	0.225	0.113	0.055	0.077	3.4148	1.74272
17	Has a positive image within society and the community.	0.318	0.199	0.161	0.19	0.071	0.032	0.029	2.7074	1.61881
<b>I perceive</b>										
21	An entrepreneurial opportunity rarely offers me the potential to generate a profit.	0.106	0.174	0.154	0.28	0.145	0.096	0.045	3.6527	1.62093
24	I see technological changes as sources of entrepreneurial opportunity because they make it possible for me to do things in more productive ways.	0.28	0.273	0.18	0.145	0.061	0.026	0.035	2.6527	1.57039

The respondents also recognized the positive effect of entrepreneurship on the country's economy (34.4%) and on the job creation (21.2%) as summarized in Table 5. They also recognized the existence of entrepreneurial opportunities in the social, political, and demographic changes of the population which are also considered an important source of entrepreneurial opportunities in many researches and books (Barringer and Ireland, 2012).

**Table 5**  
**ENTREPRENEURSHIP EFFECT ON THE SOCIETY (IN %)**

No.	Question	Strongly Agree	Agree	Agree Somewhat	Indifference	Disagree Somewhat	Disagree	Strongly Disagree	Mean	Standard Deviation
<b>I perceive that entrepreneurship</b>										
10	Can affect the country's economy positively.	0.344	0.19	0.17	0.174	0.058	0.023	0.042	2.6463	1.65109
11	Can decrease the job opportunities in the country.	0.138	0.103	0.119	0.18	0.106	0.141	0.212	4.2862	2.07094
<b>I perceive that an entrepreneur</b>										
16	Frequently makes a difference in the world.	0.186	0.238	0.215	0.19	0.119	0.032	0.019	2.9904	1.50158
<b>I perceive</b>										
25	I see entrepreneurial opportunities in the social, political, and demographic changes of the population.	0.251	0.209	0.212	0.196	0.064	0.048	0.019	2.836	1.54569

### Demographic Factors and Students' Awareness towards Entrepreneurship

Although the descriptive analysis reflected a positive indication regarding the awareness of PSUT's students towards entrepreneurship and their perception towards the effect of entrepreneurship on both the individual and the society as a reflection for their attitude towards entrepreneurship; it is important to recognize the factors that affect their attitude most. The Chi-square test results shown in Table 6 indicate that the factors including age, gender, work status, mother runs her own company, learning about business ownership, taking a specialized course in entrepreneurship did not have any influence on the students' awareness towards entrepreneurship. On the other hand, the results show that the type of high school, father runs his company, sector of father's job, learning about entrepreneurship, reading books about entrepreneurship had a strong evidence of relationship with the level of students' awareness towards entrepreneurship. Whereas, the results proved that the factors: year of study, major, type of secondary examination, level of education, attending entrepreneurship events all had a stronger evidence of relationship with the level of students' awareness towards entrepreneurship.

**Table 6**  
**CHI-SQUARE RESULTS (THE RELATIONSHIP BETWEEN DEMOGRAPHIC FACTORS AND STUDENTS' AWARENESS TOWARDS ENTREPRENEURSHIP)**

No	Question	Age	Gender	Type of secondary examination	Type of high school	Level of education	Year of study	Major	Work status	Father runs his own company	Mother runs her own company	Type of sector for father's job	I learned about entrepreneurship from	I learned about business ownership from	Took a specialized course in entrepreneurship	Regularly read books/articles about entrepreneurship /innovation	Regularly participate regularly in conferences /lectures/ workshops on entrepreneurship and/or innovation	
<b>Student's awareness towards entrepreneurship</b>																		
<b>I perceive that entrepreneurship</b>																		
1	Means owning and managing a business.	0.203	0.655	0.37	0.146	.039**	0.094	.000*	0.21	0.372	0.556	0.756	0.3	0.798	0.187	0.312	0.345	
2	Is about the application of personal qualities such as creativity, innovativeness, and imagination in business.	0.85	0.272	0.943	0.086	0.934	.000*	.000*	0.978	0.199	0.291	0.042**	0.204	0.104	0.077	0.956	0.875	
3	Involves the generation of an idea for a new product, service, or recognition of an opportunity.	0.653	0.186	0.361	0.114	0.963	0.991	.012**	0.785	0.863	0.785	0.288	0.054	0.069	0.217	0.621	0.538	
4	Offers an understanding of how opportunities to create something new arise.	0.758	0.651	0.673	0.129	0.954	0.221	.001*	0.992	0.158	0.226	0.717	0.819	0.556	0.248	0.996	0.23	
6	Is a learned competency rather than an inherited characteristic.	0.238	0.265	0.145	0.464	.010*	0.246	0.547	0.239	0.233	0.84	0.467	0.623	0.377	0.827	0.414	0.182	
9	Allows for resources to be used fairly for desired consumers	0.49	0.263	0.862	0.134	0.123	.040**	.004*	0.222	0.3	0.875	0.961	.041**	0.181	0.567	0.637	0.517	
<b>I perceive that an entrepreneur</b>																		
12	Starts a new business venture or owns a business.	0.957	0.154	0.407	0.509	0.424	0.397	.016**	0.54	0.056	0.748	0.32	0.192	0.328	0.66	0.073	0.647	
13	Enjoys seeing a technology or an invention go out as a product/service into the world.	0.933	0.382	0.554	0.193	0.089	0.192	0.194	0.623	.047**	0.629	0.868	0.669	0.861	0.914	0.774	0.733	
14	Has the freedom to accept or refuse being told what to do.	0.845	0.831	0.41	0.276	0.709	0.324	0.371	0.624	0.572	0.122	0.164	0.339	0.157	0.099	0.279	0.827	
<b>I perceive</b>																		
18	New events and activities in a positive way.	0.76	0.074	0.161	.033**	0.674	0.666	.035**	0.523	0.054	0.843	0.204	.012**	0.75	0.216	0.193	0.232	
19	My interactions with people in different situations rarely allow me to gain information.	0.947	0.179	0.519	0.316	0.592	0.238	0.078	0.854	0.83	0.305	.044**	0.296	0.684	0.607	.029**	.002*	
20	An entrepreneurial opportunity is a situation in which I can exploit a business idea.	0.958	0.624	0.613	0.753	0.81	0.307	0.008	0.945	0.129	0.398	0.967	.014**	0.082	0.524	0.835	0.943	
22	Entrepreneurial opportunities exist because people differ in their experiences.	0.793	0.455	0.373	0.62	0.09	0.342	0.104	0.261	.039**	0.217	0.514	0.147	0.213	0.289	0.163	0.739	
23	Entrepreneurial opportunities exist because people differ in their reception of information.	0.92	0.395	.006*	0.702	0.056	0.106	.048**	0.112	.044**	0.382	0.515	0.255	0.082	0.418	0.448	.021**	

Note: \* = significant at 0.01; \*\* = significant at 0.05.

### **Demographic Factors and How Students Perceive the Effect of Entrepreneurship on the Individual**

By analyzing the relationship between demographic factors and how students perceive the effect of entrepreneurship on the individual using the Chi-square test the results in Table 7 showed no evidence of relationship between age, type of secondary examination, type of high school, year of study, work status, learning about business ownership, taking a specialized course in entrepreneurship, attending entrepreneurship events from one side, and students' perception towards the effect of entrepreneurship on the individual from the other side. A strong evidence of relationship was noticed between students' level of education, parents' ownership of businesses, their gender, and their perception towards the effect of entrepreneurship on the individual. Meanwhile, a very strong evidence of relationship was discovered between the students' perception towards the effect of entrepreneurship on the individual and the factors: major, reading books about entrepreneurship, sector of father's job, and learning about entrepreneurship.

### **Demographic Factors and How Students Perceive the Effect of Entrepreneurship on the Society**

The Chi-square test in Table 8 assessed the third variable (students' perception towards the effect of entrepreneurship on the society) and its relationship with the demographic variables and reflected no evidence of relationship between this variable and the factors: age, gender, type of secondary examination, type of high school, major, parents' ownership of companies, sector of father's job, learning about business ownership, attending entrepreneurship events. The analysis also indicated that there was a strong relationship between perception towards the effect of entrepreneurship on the society and the factors: level of education, learning about entrepreneurship.

Table 7 CHI-SQUARE RESULTS (THE RELATIONSHIP BETWEEN DEMOGRAPHIC FACTORS AND HOW STUDENTS PERCEIVE THE EFFECT OF ENTREPRENEURSHIP ON THE INDIVIDUAL)																	
No	Question	Age	Gender	Type of secondary examination	Type of high school	Level of education	Year of study	Major	Work status	Father runs his own company	Mother runs her own company	Type of sector for father's job	I learned about entrepreneurship from	I learned about business ownership from	Took a specialized course in entrepreneurship	Regularly read books/articles about entrepreneurship /innovation	Regularly participate regularly in conferences /lectures/ workshops on entrepreneurship and/or innovation
<b>Entrepreneurship effect on the individual</b>																	
<b>I perceive that entrepreneurship</b>																	
5	Affords an individual the opportunity to aim for financial independence	0.282	0.671	0.498	0.125	0.481	0.073	.000*	0.459	0.879	0.76	0.215	0.231	0.664	0.44	0.288	0.413
7	May improve one's quality of life.	0.505	0.687	0.942	0.33	0.357	0.541	0.133	0.121	0.806	0.069	0.188	0.081	0.811	0.604	0.16	0.324
8	Raises one's standard of living.	0.93	0.791	0.76	0.648	.047**	0.129	0.272	0.848	.049**	0.089	0.476	0.491	0.238	0.121	.004*	0.661
<b>I perceive that an entrepreneur</b>																	
15	Frequently experiences a restlessness that keeps them from learning and trying new things.	0.621	0.061	0.056	0.179	0.565	0.598	0.167	0.438	0.807	0.567	0.342	0.152	0.152	0.26	0.159	0.957
17	Has a positive image within society and the community.	0.434	0.318	0.854	0.35	0.41	0.564	0.54	0.725	0.404	0.404	0.934	0.636	0.896	0.552	0.397	0.718
<b>I perceive</b>																	
21	An entrepreneurial opportunity rarely offers me the potential to generate a profit.	0.524	.021**	0.323	0.192	0.441	0.082	0.181	0.448	0.21	.037**	.006*	.007*	0.687	0.561	.006*	0.385
24	I see technological changes as sources of entrepreneurial opportunity because they make it possible for me to do things in more productive ways.	0.919	0.278	0.218	0.451	0.369	0.155	0.247	0.65	0.343	0.333	0.063	0.165	0.076	0.906	0.684	0.497

Note: \*=significant at 0.01; \*\*=significant at 0.05.

Table 8 CHI-SQUARE RESULTS (THE RELATIONSHIP BETWEEN DEMOGRAPHIC FACTORS AND HOW STUDENTS PERCEIVE THE EFFECT OF ENTREPRENEURSHIP ON THE SOCIETY)																	
No	Question	Age	Gender	Type of secondary examination	Type of high school	Level of education	Year of study	Major	Work status	Father runs his own company	Mother runs her own company	Type of sector for father's job	I learned about entrepreneurship from	I learned about business ownership from	Took a specialized course in entrepreneurship	Regularly read books/articles about entrepreneurship /innovation	Regularly participate regularly in conferences /lectures/ workshops on entrepreneurship and/or innovation
<b>Entrepreneurship effect on the society</b>																	
<b>I perceive that entrepreneurship</b>																	
10	Can affect the country's economy positively.	0.186	0.917	0.943	0.724	0.118	0.209	0.519	0.331	0.275	0.908	0.709	0.604	0.375	0.43	.040**	0.288
11	Can decrease the job opportunities in the country.	0.412	0.926	0.867	0.774	0.16	.021**	0.195	.023**	0.189	0.691	0.153	0.226	0.125	0.824	0.682	0.667
<b>I perceive that an entrepreneur</b>																	
16	Frequently makes a difference in the world.	0.717	0.238	0.344	0.465	0.972	0.571	0.204	0.855	0.196	0.365	0.738	0.342	0.233	0.185	0.328	0.85
<b>I perceive</b>																	
25	I see entrepreneurial opportunities in the social, political, and demographic changes of the population.	0.649	0.771	0.074	0.583	.002*	.025**	0.274	0.681	0.255	0.482	0.971	.009*	0.023	.028**	0.094	0.101

Note: \*=significant at 0.01; \*\*=significant at 0.05.



## IMPLICATIONS AND CONCLUSIONS

According to the findings, we can say that the results of this study are consistent with model presented at the end of the literature review section as the supportive university environment was in the form of entrepreneurship events, specialized courses and general learning about entrepreneurship. Whereas the awareness was measured by the factors: learning about entrepreneurship, reading books about entrepreneurship, the level of education, year of study, and attending entrepreneurship events. On the same hand, entrepreneurship education was measured by taking specialized courses about entrepreneurship. Additionally, personal influences were measured by the persons' willingness to attend events, take courses, and read books about entrepreneurship. The family influence was represented by assessing the effect of parents' ownership of businesses and the peers' influence was measured by asking the students where they heard about entrepreneurship from. The financial factors were measured by the fathers' sector of job, type of secondary education and type of high school; whereas the gender was measured as an explicit factor. However, the level of country development was not measured because all the students are from the same environment; this can be assessed in future research.

The major of study was the strongest variable affecting students' attitude towards entrepreneurship at PSUT; the results showed that students at the business school in all its majors had a more positive attitude towards entrepreneurship than the students in other schools (70.3%). This can be linked to the awareness factor as most of the business school students said they have taken a specialized course in entrepreneurship (84.5%) and attended entrepreneurship events (67.9%). It is worth mentioning that the business school at PSUT provides two entrepreneurship courses (introduction to entrepreneurship and entrepreneurship & innovation), additionally, the college has held an entrepreneurship event under the title (Entrepreneurship Day) which allowed the students to be exposed to the concept of entrepreneurship.

The results of this study concluded that the demographic factors (year of study, major, secondary examination, level of education, attending entrepreneurship events, reading books about entrepreneurship, sector of father's job, learning about entrepreneurship, type of high school, father runs his company, mother runs her company, gender, work status, taking a specialized course in entrepreneurship) affect the students attitude towards entrepreneurship at PSUT in terms of: students' awareness towards entrepreneurship, students' perception towards the effect of entrepreneurship on the individual and students' perception towards the effect of entrepreneurship on the society. Therefore, university administrators are advised to focus on including specialized entrepreneurship courses to the curriculums, holding entrepreneurship related events and initiatives, and providing an environment that supports entrepreneurial activities in campus; these advices accompany with the results of other related research work; Turker & Selcuk (2009) concluded that educational and structural support factors affect the entrepreneurial intention of students. On the governmental level; the "*promoting entrepreneurship*" policy should be adopted to increase the number of people considering the start-up option in general and those university graduates in particular (Liñán et al., 2011).

The results included the following:

1. PSUT students have significant differences as to their attitudes towards entrepreneurship based on demographic characteristics (gender, age, financial status, level of education, work status, and major of study, parents' own business).
2. PSUT students have a high level of awareness towards entrepreneurship.

3. PSUT students perceive entrepreneurship effect on the individual positively.
4. PSUT students perceive entrepreneurship effect on the society positively.

Although this paper was oriented towards the students at Princess Sumaya University for Technology; it can be extended in the future to include more universities or to be applied on several universities for the purpose of comparison on the regional and international levels.

## REFERENCES

- Al-Mohammad, S.M. (2010). The impact of BA education over the entrepreneurial intentions of Jordanian students: An application of theory of planned behavior. *Jordan Journal of Business Administration*, 6(2), 262-293.
- Anabela, D., Arminda, D.P., Mário, F.J.R., & Ricardo, G.R., (2013). Psychological characteristics and entrepreneurial intentions among secondary students. *Education and Training*, 55(8/9), 763-780.
- Bawaneh, S.S. (2012). Entrepreneurship education package at undergraduate university level. *American International Journal of Contemporary Research*, 2(7), 47-52.
- Bernstein, A. (2011). *Nature vs. nurture: Who is interested in entrepreneurship education? A study of business and technology undergraduates based on social cognitive career theory*. Doctor of Philosophy Thesis, The George Washington University, Washington, D.C: USA.
- Barringer, B.R., & Ireland, R.D. (2012). *Entrepreneurship, Successfully Launching New Ventures*, Pearson/Prentice Hall, Upper Saddle River, NJ.
- Campbell, N., & Mitchell, D.T. (2012). A (partial) review of entrepreneurship literature across disciplines. *Journal of Entrepreneurship and Public Policy*, 1(2), 183-199.
- Chrisman, J.J., McMullan, W.E., Ring, J.K., & Holt, D.T. (2012). Counseling assistance, entrepreneurship education, and new venture performance. *Journal of Entrepreneurship and Public Policy*, 1(1), 63-83.
- Dabic, M., Daim, T., Bayraktaroglu, E., Novak, I., & Basic, M. (2009). Exploring gender differences in attitudes of university students towards entrepreneurship: An international survey. *International Journal of Gender and Entrepreneurship*, 4(3), 316-336.
- Davey, T., Plewa, C., & Struwig, M. (2011). Entrepreneurship perceptions and career intentions of international students. *Education and Training*, 53(5), 335-352.
- Duval-Couetil, N. (2013). Assessing the impact of entrepreneurship education programs: Challenges and approaches. *Journal of Small Business Management*, 51(3), 394-409.
- Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence. *Journal of Small Business Management*, 53(1), 75-93.
- Frank, H., Korunka, C., Lueger, M., Vienna, A., & Mugler, J. (2005). Entrepreneurial orientation and education in Austrian secondary schools status quo and recommendations. *Journal of Small Business and Enterprise Development*, 12(2), 259-273.
- Gelderen, M.V., Brand, M., Praag, M.V., Bodewes, W., Poutsma, E., & Gils, A.V. (2008). Explaining entrepreneurial intentions by means of the theory of planned behavior. *Career Development International*, 13(6), 538-559.
- Guzma N-Alfonso, C., & Guzman N-Cuevas, J.N. (2012). Entrepreneurial intention models as applied to Latin America. *Journal of Organizational Change Management*, 25(5), 721-735.
- Henderson, R., & Robertson, M. (2000). Who wants to be an entrepreneur? Young adult attitudes to entrepreneurship as a career. *Career Development International*, 41(5), 279-287.
- Jones, P., Jones, A., Packham, G., & Miller, C. (2008). Student attitudes towards enterprise education in Poland: A positive impact. *Education and Training*, 50(7), 597-614.
- Kharabsheh, R., Magableh, I.K., & Arabiyat, T.S. (2011). obstacles of success of technology parks: The case of Jordan. *International Journal of Economics and Finance*, 3(6), 219-226.
- Kirzner, I.M. (1997). Entrepreneurial discovery and the competitive market process: An Austrian approach. *Journal of Economic Literature*, 35(1), 60-85.
- Kolvareid, L., & Moen, Ø. (1997). Entrepreneurship among business graduates: Does a major in entrepreneurship make a difference? *Journal of European Industrial Training*, 21(4), 154-160.
- Liñán, F., Rodríguez-Cohard, J., & Rueda-Cantuche J. (2011). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal*, 7(2), 195-218.
- Luis, J., Lanero, A., Gutiérrez, P., & García, M.P. (2011). *The role of university in the development of entrepreneurial vocations: A Spanish study*.

- Majumdar, S., & Varadarajan, D. (2013). Students' attitude towards entrepreneurship: Does gender matter in the UAE? *Foresight*, 15(4), 278-293.
- Masri, M., Jemni, M., Al-Ghassani, A.M., & Badawi, A.A. (2010). Entrepreneurship education in the Arab states. *Beirut: UNESCO Regional Bureau for Education in the Arab State*.
- Matlay, H. (2005). Viewpoint entrepreneurship education in UK business schools: Conceptual, contextual and policy considerations. *Journal of Small Business and Enterprise Development*, 12(4), 627-643.
- Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, 15(2), 382-396.
- Miller, R.A., & Collier, E.W. (2010). Redefining entrepreneurship: A virtues and values perspective. *Journal of Leadership, Accountability and Ethics*, 8(2), 80-89.
- Nabi, G., & Liñán, F. (2011). Graduate entrepreneurship in the developing world: Intentions, education and development. *Education and Training*, 53(5), 325-334.
- Najim, N.A., El-Refae, G.A., & Alnaji, L. (2013). The impact of the key dimensions of entrepreneurship on opportunities for the success of new ventures in the greater Amman municipality. *European Journal of Business and Management*, 5(4), 159-173.
- Neck, H.M., & Greene, P.G. (2011). Entrepreneurship education: Known worlds and new frontiers. *Journal of Small Business Management*, 49(1), 50-70.
- Sánchez, J.C. (2013). The impact of an entrepreneurship education program on entrepreneurial competencies and intention. *Journal of Small Business Management*, 51(3), 447-465.
- Sesen, H. (2013). Personality or environment? A comprehensive study on the entrepreneurial intentions of university students. *Education and Training*, 55(7), 624-640.
- Turker, D., & Selcuk, S.S. (2009). Which factors affect entrepreneurial intention of university students? *Journal of European Industrial Training*, 33(2), 142-159.
- Volery, T., Müller, S., Oser, F., Naepflin, C., & Rey, A.D. (2013). The impact of entrepreneurship education on human capital at upper-secondary level. *Journal of Small Business Management*, 51(3), 429-446.

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