

Research Article

**Developing Entrepreneurship skills in Medical students:
A case study of Iran**

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ABSTRACT

The purpose of this descriptive-analytical study was to determine and compare the views of faculty members and medical students of School of Medicine of Iran University of Medical Sciences (IUMS) in relation with the role of university in creating Entrepreneurship Skills in medical students. All the faculty members includes 82 persons have been selected to participate and 132 medical students in internship stage of medical education were calculated by using of Cochran's formula with the confidence coefficient of 95 % and they have been selected by random method. The instrument was Margaret Hill's entrepreneurship questionnaire. The faculty members know that the role of School of Medicine of IUMS is effective on creating entrepreneurship skills in the domains of organizational acts, individual attitude, flexibility and entrepreneur culture and medical students know it effective in the domains of organizational acts, individual attitude, flexibility and entrepreneur leadership.

Key words: Entrepreneurship skills, medical students, faculty members, medical faculty

1-INTRODUCTION

With regard to the special role and place of entrepreneurs in the development procedure and economic development and also social transformations of current era, many governments in the developed and developing countries attempt to encourage and conduct more people of the society who have entrepreneurship features for education in order to acquire the entrepreneurship skills and entrepreneurial activities by maximum facilities and utilization of investigative achievements (Ansari and et al, 2010).

Nowadays, education of entrepreneurship has been converted to one of the most important and vaster activities of universities. For the first

time, the Harvard University held the entrepreneurship education course in 1947. In the late 50s, Japan was the first country that started its activity in this field classically and put the education and propagation of entrepreneurship culture in its agenda from high school up to universities levels (Khan Jozie, 2007). Clark believes that dynamic universities in 21st are the universities which have been entrepreneur and can combine the specialized and management values (Ansari and et al, 2010). Parsons, Talcott, famous American sociologist knows the development of entrepreneurship culture and innovation as the product of social system and influenced from the instructions of

family and educational institutes that under its light, the actors' motivation is increased for undertaking the productive roles; he believes that if the economic and social effects of entrepreneurship are considered, the role of experts and educated ones in the development of the society will become clear (Rahimian and et al, 2014). From experts' view, realization of entrepreneurship and creation of business opportunities are accomplished by persons who have tendency to succeed. Diligence, intention and will, venture, creativity, flexibility and leadership ability are some features which distinguish between this group of persons and other groups (Parker, 2011).

Some studies have been accomplished about it such as Zahiri (2006) that in the study of designing the organizational structure of entrepreneurship centers in the medical sciences universities of the country knows the entrepreneurship as the long-term educational process which requires cohesive planning in the educational and investigative system. KhaniJozie (2007) indicated that if the education of entrepreneurship during different educational years of students is accomplished for creating and promoting the entrepreneurship culture in the country's universities, it can be an important factor for formation of students' values and beliefs for attaining the serious affair of entrepreneurship. In a study which has been done by Mehrabkhani and et al (2010), the results indicate that proper financial income, occupational security, good social situation and proper work hours are as the most effective factors in selecting the dentistry field. In the research of Dastgerdi and et al (2012) in this same regard, the existence of provocative factors such as Business-Oriented and People -Oriented has been effective on course selection in order for male and female students. Jalilian and et al (2013) in their research indicated that the awareness and attitude of medical students of that university to the entrepreneurship have been on the reverse direction of entrepreneurship by using of acquiring the allocated mean scores of standard questionnaire of entrepreneurship. Jalilian knows the entrepreneurship development design in the universities (Karad

as the solution for strengthening the entrepreneurship morale of medical students. Kazemi and et al (2013) in studying the effect of entrepreneurship on economic development with regard to the positive correlation coefficient between two components of economic development and entrepreneurship mentions and suggests that higher education and educational centers of the country should put the entrepreneurship skill in the agenda. The research results of Rahimian and et al (2014) indicate that the senior students that should enter to the work market as the output of university system, don't utilize of the employment creation skill. Philips and Garman (2006) in their research about the effect of entrepreneurship education plans on the attitude of medical students to the entrepreneurship concluded that in all students who have internal control feature, after taking part in the entrepreneurship education plans, positive attitude to the entrepreneurship has been created. In the research of Guo and Kristian which was accomplished in order to study the entrepreneurship management of health organizations, it was indicated that male students have had more success in acquiring the scores of flexibility and venture features, while female students have had higher scores in the internal and independency features. In the study accomplished by Kim, Joseph (2012), the results indicate that medical students need to acquire these kind of skills more than others to be able to act in the business world and face with it correctly. Also the research results of Dube, Sharul and et al (2015) indicate that the students of medical group during passing their theoretical education in a manner that is expected by educators and teachers of university don't utilize of business skills and techniques in the health domain. The researchers of this investigation have found out that entrepreneurship skill and creation of occupations in the health domain during the education period enable the physicians to play numerous aspects of their role in the organization as the managers and encouragers of acts based on evidences in the health domain. Therefore, with regard to the entrepreneurship role in the social and economic

development, the educational and investigative institutes in their educational plans should consider the students' needs in learning the necessary occupational skills in the work market (Rahimian and et al, 2014). Many universities such as Stanford, Colombia, New York, Oxford and Duke have compiled some changes in this field in the curriculums of recent years; the students of these universities in addition to be familiarized with the entrepreneurship concept, should learn the ability and skill of creative thought based on creating the occupation opportunities (Jahani and et al, 2013).

Also in our country according to the necessity of higher education development in recent decades in the medical sciences domain, we have faced with increase of the capacity of student admission. Close competition in entrepreneurship affair and the limitation existing in attracting and applying the educated persons of medical sciences in the health, therapeutic and education centers dependent on medical sciences universities of the country has caused to reduce the tendency to be educated in the medical sciences courses or reduce the motivation and tendency of students in acquiring the necessary knowledge and awareness in the medical sciences arena (ibid, 31). And since there are also abundant fields for acquiring employment in the health and therapeutic occupations, necessarily the universities and higher education institutes should attempt to train the entrepreneurship capabilities of students as the fundamental and valuable capitals and they should provide the entrepreneurship development and also the fields of employment creation and effective development (Damk and et al, 2010).

Therefore, in line with the research purposes and the results of previous studies and necessity of studying this issue, we seek to respond to the following questions:

1. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of organizational acts governing on the medical faculty for creating the entrepreneurship skills ability in the health domain?

2. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of individual attitude of students and faculty members for creating the entrepreneurship skills in the health domain?

3. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of reward and encouragement in creating the entrepreneurship skills ability of health domain?

4. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of flexibility of medical faculty in creating the entrepreneurship skills ability of health domain?

5. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of entrepreneur leadership thought in creating the entrepreneurship skills ability of health domain?

6. What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of entrepreneurship culture in creating the entrepreneurship skills ability in the health domain?

2-The research methodology

The methodology of current study in terms of purpose is applicable and in terms of nature, it is from the kind of descriptive-analytical studies which has been done with sectional method. The research population includes the faculty members of basic sciences groups of medical faculty and internship students of medicine course of medical sciences university of Iran. With regard to the obtained information of researcher, the faculty members of basic sciences groups are 82 persons and in 12 educational groups and the students of medicine course who are passing the internship period in the first educational term of 2015-2016 are 402 persons. The sample number of this study with regard to the accomplished researches and similar researches and accomplished statistical estimation, in the population of faculty members

of basic sciences groups includes the census of all statistical population size and 82 persons and in the students group of internship period of first educational year of 2015-2016, it has been calculated equal to 132 persons by using of the coachman's formula for calculation of sample size and confidence coefficient of 95% with the standard error of 0.07 in the statistical population of 402 internship students of medical faculty. The sampling method in this research with regard to the specified and available population of the research has been considered systematic random sampling (regular random). For this purpose, with regard to determine 132 persons of the sample size in the students group with confidence coefficient of 95% and 402 students of internship period of faculty, the samples interval has been calculated the number 3 and it was selected with selection of number 4 from the table of random numbers of the statistical sample of the research according to the students names list. The information collection tool is the Margaret Hill's questionnaire for evaluation of the effective components on entrepreneurship. This questionnaire has been applied in the study of Talebpur and et al (2008), thesis of HosseiniAghdam (2011) and also the research of Soltanzadeh (2014) and its validity and reliability have been calculated by utilization of the experts' views and Cronbach's Alpha coefficient for each question separately. Also in this research, with help of statistical software of SPSS, the amount of confidence coefficient has been calculated 0.928 for every 48 questions by using of Cronbach's Alpha method. In order to determine the validity of the information collection tool, the content validity method has been used. For data analysis, the descriptive and inferential statistics have been used by applying the statistical software of SPSS (Statistical Package for the Social Sciences 22. 2012) and Microsoft Excel (2012). The descriptive statistic has been used in determining the percentiles, percentages, frequency distribution tables and also data mean. In order to present the results obtained from the data analysis, Bar Charts (clustered) and Line Charts (Multiple) have been used. To be ensured of the normal distribution of

data, Kolmogorov-Smirnov test has been used. One-sample T-Test has been applied in order to describe the findings and determine the role of each one of six components of organizational acts, individual attitude, flexibility, encouragement and reward, entrepreneur leadership and entrepreneurship culture in creating the entrepreneurship skill from the view of faculty members and students. Also in order to compare the views of faculty members and students about the role of each one of six effective components on creating the entrepreneurship skill in the faculty, Independent Samples Test has been accomplished

3-The research findings

3-1-Demographic findings

Faculty members: The statistical sample number of faculty members of basic sciences groups under study in this research includes 82 persons and the number of students in internship period includes 132 persons. In distributing the questionnaire of faculty members group, 61 questionnaires with the responding amount of 74.3 percent and in the medical students group, 115 questionnaires with the responding amount of 87.2 percent were collected and analyzed.

From 61 persons of faculty members under study in this research, 36 persons (59.4 percent) have been men and 25 persons (40.6 percent) have been women. The age average of male faculty members has been reported 42.3 and the age average of female faculty members has been 39 years old. 4 male faculty members and 5 female faculty members haven't responded to the question of age component.

Minimum and maximum educational years of male faculty members in this study have been in order 1 and 30 years. The average of educational-investigative years of male faculty members was calculated equal to 11.5. Minimum and maximum educational years of female faculty members are in order 1 and 27 years. The average of the educational-investigative years of female faculty members has been calculated equal to 7.3.

The faculty members in this study with scientific rank of professor, professor assistant, lecturer and tutor have been in order 4 persons (6.0

percent), 39 persons (63.0 percent), 15 persons (24.0 percent) and 3 persons (4.0 percent).

Students: From 115 students under study in this research, 45 persons (39 percent) have been men and 70 persons (61 percent) have been women. The age averages of male and female students have been reported in order 24.3 and 23.9. The students of 8th, 9th, 10th, 11th and 12th terms have included in order 20, 30, 27, 19 and 19 persons.

3-2-The analytical findings of the research

In order to respond to the research questions, one-group T-Test was applied for the faculty members and students separately.

3-2-1-Organizational acts

The research question: What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of organizational acts governing on medical faculty in creating the entrepreneurship skills ability in the health domain?

Table No.1: The results of one-group T-Test for faculty members and students

AVERAGE	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Faculty members	2.61	60	.011	.250	.058	.441
Students	-2.40	114	.018	-.173	-.315	-.030

In order to compare the views of faculty members and students about the role of organizational acts governing on medical faculty for creating the entrepreneurship skills ability in the health domain, the average of response to the questions of organizational acts domain was evaluated in both groups of faculty members and students with Independent Samples Test and the results with calculation of P.Value=0.001 (Sig≤0.05) indicate the existence of significant difference between the views of faculty members and students about the role of organizational acts of medical faculty in creating the entrepreneurship skill.

Table No.2 indicates the results of Independent Samples Test for both groups of faculty members and students in the organizational acts domain.

Table No.2: Independent Samples Test of faculty members and students in the organizational acts domain										
AVERAGE		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	.000	.000	3.00	174.0	.001	.423	.120	.184	.661
	Equal variances not assumed			3.00	126.0	.001	.423	.119	.186	.659

3-2-2-Individual attitude

The research question: What is the difference between the individual attitudes of students and faculty members of medical faculty of medical sciences university of Iran about creating the entrepreneurship skills in the health domain?

AVERAGE	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Faculty members	16.00	60	.000	1.05	.919	1.18
Students	15.37	114	.000	.877	.764	.990

Table 3: The results of one-group T-Test of faculty members and students in the attitude domain

Table 4: Independent Samples Test of faculty members and students groups in the individual attitude domain

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	3.00	.067	1.000	174	.060	.173	.091	.007	.345
	Equal variances not assumed			1.000	142	.048	.173	.087	.002	.355

In order to compare the views of faculty members and students about the role of individual attitude in the medical faculty for creating the entrepreneurship skills ability in the health domain, the average of response to the questions was evaluated in both groups of faculty members and students by Independent Samples Test and the results with calculation of P.Value=0.06 (Sig>=0.05) indicate that there is not significant difference between the views of faculty members and students about the individual attitude to the role of faculty in creating the entrepreneurship skill.

3-2-3-Flexibility

The research question: What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the flexibility situation of medical faculty in creating the entrepreneurship skills ability of health domain?

Table No.5 indicates the results of one-group T-Test in the flexibility component for faculty members and students.

Test Value = 3.00

AVERAGE	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
					Faculty members	7.93
Students	5.41	114	.000	.291	.184 .397	

Table No.5: The results of one-group T-Test in the flexibility component

Table No.6: Independent Samples Test of faculty members and students groups in the flexibility domain

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	2.20	.138	2.80	174	.050	.251	.089	.075	.427
	Equal variances not assumed			2.80	130	.056	.251	.087	.078	.423

In order to compare the views of faculty members and students about the flexibility role of medical faculty for creating the entrepreneurship skills ability in the health domain, the average of response to

the questions in both groups of faculty members and students was evaluated with Independent Samples Test and the results with calculation of P.Value=0.056 (Sig \geq 0.05) indicate that there is not significant difference between the views of faculty members and students about the flexibility role of medical faculty in creating the entrepreneurship skill.

3-2-4-Encouragement and reward

The research question: What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran in creating the entrepreneurship skills ability of health domain?

Table No.7: The results of one-group T-Test for faculty members and students

AVERAGE	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Faculty members	.710	60	.480	.062	-.112	.236
Students	-.372	114	.711	-.024	-.156	.106

In order to compare the views of faculty members and students about the role of encouragement and reward of medical faculty in creating the entrepreneurship skills in the health domain, the average of response to the questions was evaluated in both groups of faculty members and students by Independent Samples Test and the results with calculation of P.Value=0.43 (Sig \geq 0.05) indicate that there is not significant difference between the views of faculty members and students about the role of encouragement and reward in creating the entrepreneurship skill.

Table No.8: Independent Samples Test of faculty members and students group in the domain of encouragement and reward

AVERAGE		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	.029	.865	.780	174	.436	.086	.112	-.132	.306
	Equal variances not assumed			.790	126	.431	.086	.109	-.130	.303

3-2-5-Entrepreneur leadership

The research question: What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the thought situation of entrepreneur leadership in creating the entrepreneurship skills ability of health domain?

Table No.9: The results of one-group T-Test for the faculty members and students

AVERAGE	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Faculty members	.246	60	.807	.023	-.167	.214
Students	-3.491	114	.001	-.242	-.379	-.104

In order to compare the views of faculty members and students about the role of entrepreneur leadership in medical faculty for creating the entrepreneurship skills ability in the health domain, the average of response to the questions was evaluated in both groups of faculty members and students by Independent

Samples Test and the results with calculation of P.Value=0.026 (Sig≤0.05) indicate that there is significant difference between the views of faculty members and students in the role of entrepreneur leadership in creating the entrepreneurship skill.

Table 10: Independent Samples Test of faculty members and students groups in the entrepreneur leadership domain

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	.151	.698	2.25	174	.026	.265	.117	.032	.498
	Equal variances not assumed			2.25	122	.026	.265	.117	.032	.498

3-2-6-entrepreneur culture

The research question: What is the difference between the views of students and faculty members of medical faculty of medical sciences university of Iran about the role of entrepreneur culture in creating the entrepreneurship skills ability in the health domain?

Table No.11: The results of one-group T-Test for faculty members and students

AVERAGE	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Faculty members	2.62	60	.011	.229	.054	.404
Students	-1.17	114	.242	-.085	-.230	.058

In order to compare the views of faculty members and students about the role of entrepreneur culture in the medical faculty for creating the entrepreneurship skills ability in the health domain, the average of response to the questions was evaluated in both groups of faculty members and students by Independent Samples Test and the results with calculation of P.Value=0.006 (Sig≤0.05) indicate that there is significant difference between the views of faculty members and students about the role of entrepreneur culture in creating the entrepreneurship skill.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AVERAGE	Equal variances assumed	1.000	.000	2.00	174	.009	.315	.118	.080	.549
	Equal variances not assumed			2.00	137	.006	.315	.113	.090	.540

Table 12: Independent Samples Test of faculty members and students in the entrepreneur culture domain

4. Discussion and conclusion

The results related to study the findings in six domains of the effective factors on entrepreneurship skill in the faculty members

and students groups indicate that faculty members have known the role of faculty effective on creating the entrepreneurship skill in the domains of organizational acts, individual

attitude, flexibility and entrepreneur culture and they don't know it effective on the domains of encouragement and reward and entrepreneur leadership. While from students' view, the role of faculty is effective on creating the entrepreneurship skill in the domains of organizational acts, individual attitude, flexibility and entrepreneur leadership and it is not effective on the domains of encouragement, reward and entrepreneurship culture.

The results obtained from studying the role of organizational acts component in creating the entrepreneurship skill in medical faculty conform to the research results of Dehghan and et al (2011) and the results of research accomplished in Leeds University of England in 2015 which was done in order to study the manner of entrepreneurship skill development among the students of medical group from educators' view in comparison with current study indicate the existence of difference in the view of teachers in both universities.

With regard to the results obtained from response to the questions of individual attitude component from the views of faculty members and students to the entrepreneurship and also the data obtained from studying the entrepreneurship experiences in the demographic questions in current research, it seems that acquisition of entrepreneurship skill in the education environment has special importance for educators and learners, this important necessitates that planners and decision-makers of medical sciences education in the policies and compiling the curriculums to attempt in creating proper conditions in order to acquire awareness and learn the entrepreneurship skill.

The results obtained from attitude component are different with the research results of Jalilian and et al (2013) which has been accomplished in order to study the awareness and attitude of medical students of medical sciences university of Kermanshah. In the research of Philips and Garman that was accomplished in 2006 with the purpose of studying the effect of curriculums on attitude of medical students to the entrepreneurship, the results indicate that the students during their educational period have

had positive attitude to the entrepreneurship. Also, the findings of this research aligned with the study of Dehghan and et al indicate that from the views of faculty members and students, flexibility has effective role in creating the entrepreneurship skill, as it is perceived from the response to the questions of flexibility component, faculty members and students believe that important decisions in the faculty are made by senior managers and the suggestions of faculty members and students aren't considered as it should be regarded. About the results of leadership component, this finding conforms to the research of Kim, Joseph (2012).

The findings about the views of faculty members in the entrepreneur culture domain indicate that faculty members believe that the faculty has known the creativity as the necessary need for future of faculty and the persons enjoying of entrepreneurship skill that cause innovation are encouraged. The students' view in response to the total of questions in the entrepreneur culture domain indicates that in the faculty, the team work isn't emphasized and the views of students, professors and persons enjoying of entrepreneurship skill aren't considered. The students have given the scores lower than average to the components of training the new thought models which are being developed in the faculty and also attempt in order to reduce the friction existing among employees, faculty members and students.

The results obtained from studying the role of entrepreneurship culture component in creating the entrepreneurship skill in the medical faculty conform to the research results of KhaniJozie about studying the effect of entrepreneurship education on promotion of entrepreneurship culture of medical sciences universities of the country. Jozie in the research accomplished in 2009 has studied the scores average of three groups of entrepreneur professor and student and entrepreneur out of university, he has found out there is not significant difference between the scores of all three groups under study. Jozie in this research mentions that from the views of professors and students, education of entrepreneurship is effective on promotion of

entrepreneurship culture in students and faculty members.

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