



Study of the educational factors contributing to realization of the objectives of entrepreneurial university

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ABSTRACT

As the changing needs of the society create new responsibilities for universities, their missions and objectives shift from mere research and education to development of entrepreneurship. For that purpose, the higher education systems in most countries have prepared special curricula for education of entrepreneur graduates. The purpose of the present research is to study the role of three main dimensions of education system i.e. competencies of scientific board members, teaching-learning process, and the curriculum in realizing the goals of entrepreneurial university. The present research employs a combined method. In the qualitative section of the present study, 10 experts on entrepreneurship education in universities of Tehran are interviewed. The sample size in the quantitative section is 72. In order to collect the data and gather information in the qualitative section, the present study relies on the existing theoretical background; a questionnaire has been designed with regard to the information extracted from the interviews. The questionnaire's validity has been confirmed by the experts; and using Cronbach's Alpha, its reliability has been measured to be 0.95. The data analysis in the quantitative section of this study has been carried out using central indices (mean and standard deviation). The results indicate that regarding the dimension of teachers' competency, possession of entrepreneurial capabilities is necessary for the teachers. Concerning teaching-learning process, the use of active teaching-learning methods has a special place in education of entrepreneurship. As for the dimension of curriculum, attention to educational contents which revolve around entrepreneurship is important.

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1. Introduction

In today's competitive environment, the issue of entrepreneurship is one of the main concerns of various institutions and universities all over the world. Due to the importance and the role of entrepreneurship and entrepreneurs in national growth and developments during past two decades, universities in most countries have prepared research and education programs based on their needs and capacities in order to train entrepreneurs. In other words, as the countries' economy, rules and regulations, and market demands change, the higher education system tries to make changes in its programs to correspond to economic development and market trends. For that reason, it is necessary to develop and expand entrepreneurial education (Vasefian et al., 2009). Like any other modern phenomenon, entrepreneurship requires proper

cultivation, education, research, structural reform, and executive institutions. Moreover, the all-out development of entrepreneurship needs proper attention to all necessary instrumentations and prerequisites (Yadollahi and Mirarab, 2009).

Since entrepreneurship affects economic growth, the institutions of higher education should try to implement educational and training programs through which the society is supplied with entrepreneur workforce. The main objective of these institutions should be the development of competencies and entrepreneurial minds. To that aim, entrepreneurship education programs follow objectives such as cultivation of entrepreneurship among students (motivation and raising awareness), education of students on the necessary skills to start a business and manage its development, and improvement of entrepreneurial capabilities for identification and use of opportunities (Johannes, 2011).

The emergence of entrepreneurial university has created a great challenge for higher education

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system. It has introduced vast concepts such as commercialization of university technologies, patenting, licensing, franchising, revenue from transfer of rights, and establishment of branch firms into academic systems. The entrepreneurial university model was first developed in MIT and Stanford universities; today, most of the large and credible universities use this approach. On the path to entrepreneurship, the universities should leave their traditional roles and move toward innovation and entrepreneurship (Etzkowitz, 2008).

UNESCO defines the entrepreneurial university as follow: an entrepreneurial university is one which trains the students to become entrepreneurs; it creates entrepreneurial structures within itself, develops entrepreneurial culture within the society and university, seeds the entrepreneurial attitude within the teachers, employees, and students, and develops their entrepreneurial skills. Based on what has been discussed, universities and institutions of higher education try to prepare university's internal and external environment for entrepreneurship and establish the required interactions between different university departments for involvement with entrepreneurship (Guerrero et al., 2006). Guerrero and Urbano (2010) identify two categories of formal and informal elements affecting entrepreneurial universities. They classify entrepreneurship education as a formal element, and methods of entrepreneurship education as informal elements. Postigo and Tamborini (2004) design a model for teaching-learning methods in one of the universities of Argentina. This model emphasizes on methods of active learning (Vafaei, 2010). Also Kirby (2004) believes that universities need to change both the content and methods of entrepreneurial education.

In Iran, instead of using methods of active teaching which improve the students' thinking capabilities, universities and institutions of education system focus more on memorization and transfer of knowledge and information to the learners' minds (Sheikhzadeh and Samari, 2010). Concerning the curriculum, educational programs in Iran focus more on subject-based or technology-based curricula and the attention is mainly concentrated on scientific fields of study. Educational curricula in Iran mostly follow a traditional approach. Based on the classification made by Silver et al. methods which are more compatible with subject-based curriculum are traditional; in such methods, the teacher is active while the learner (student) remains inactive and the purpose of teaching is mere transfer of knowledge and information (Momeni, 2009).

The purpose of the present research is to study the main aspects of entrepreneurial education in three dimensions of scientific board members' competency, teaching-learning process, and curriculum in higher education system.

1.1. Research literature

According to Gibb (2002) and Shook (2003) the entrepreneurial university is founded on entrepreneurship education; the process of entrepreneurship education is consisted of four stages i.e. attention, knowledge, experience, and practice, which are known as entrepreneurial behaviors. In other words, development of entrepreneurial behaviors requires passing stages the realization of which requires proper trainings which are different from traditional methods of education. On that basis, in order to become an entrepreneur a student should understand the value and importance of entrepreneurship and acquire its necessary capabilities (that is attention to entrepreneurship); he should be able to carry out social activities learnt through his course of education and must be able to satisfy the needs of society and of himself (that is the practice of entrepreneurship). This would not happen unless through acquisition of the required knowledge and experience in a way that leads to a comprehensive learning in the student's related field of study. In a more comprehensive view on entrepreneurial education, UNESCO has emphasized on innovation in all academic aspects (input, output, and process).

In an article titled "entrepreneurial educational need assessment", Josoh et al. (2011) explained the entrepreneurial skills which are necessary for success. Training potential entrepreneurs through education and training courses helps economic growth. An entrepreneurship support system can facilitate and encourage entrepreneurial behaviors and subsequently reduce unemployment rate, increase job creation, and decrease the rate of business failure by proper entrepreneurial education design. The content of this sort of education may include identification of opportunities, commercialization of a concept, resource mobilization to confront a risk, and application of innovative ideas in business. It may also include education on the principles of business such as management, marketing, and financial information systems. Fayolle and Gailly (2008) define entrepreneurial education objectives as training teachers and researchers of entrepreneurship, preparation of individuals' entrepreneurial minds, and education of entrepreneurs and expert; he denotes that methods used for each of these objectives are significantly different. Garavan and Ocinneide (1994) wrote an article titled "entrepreneurship programs and education". In the first section of the article, they explain the purpose of entrepreneurial education. Then they discuss some issues of entrepreneurial education such as decision-making with limited information, understanding the system of values of the individuals who distribute or filter the information, learning in the action, successful learning through problem-solving, and learning from failure (Garavan and Ocinneide, 1994).

Fayolle and Gailly (2006) studied 20 participant students and conclude that entrepreneurial education significantly affects students'

entrepreneurial intentions. As for self-efficacy, the findings reveal that entrepreneur students have higher entrepreneurial self-efficacy in comparison with non-entrepreneur students. In alignment with the findings by Bandura (1986) and Boyd and Vesiki (1994), Muofhe (2011) concluded that there is a positive relationship between entrepreneurship education and self-efficacy. The results indicate that students of entrepreneurship have stronger beliefs regarding the ability to become entrepreneurs, and are better prepared to increase their efforts on entrepreneurial activities; they are also more resilient in their confrontation with obstacles and negative experiences (Muofhe, 2011).

1.2. Scientific board members' competency

The 1960s is considered to be the age of educational revolution in the US. Increasing demands for curriculum reform and further responsibility in education along with dissatisfaction with teachers' performance gave rise to competency-based education and training movement (CBET) (Burke, 1989). This movement emphasizes on the process which shifts the focus of education from what the teachers believe their students should know (teacher-based) to what the students should know and put to use in complex situations (focus on student/workforce) (Moon, 2007). Zolfaghari and Mehrmohammadi (2004) notes that during the past few decades, university teachers' characteristics and its relationship with their performance in teaching-learning process has attracted the attention of many scientists and researchers of education; that is because the roots of students' learning or the impact of education should be sought in what happens in the teaching-learning environment i.e. the classroom. Scientific board members are among the most effective components of higher education system; their performance and professional behavior manifest itself in their teaching methods more than in anything else.

The scholars study the issue of competency in relation with the area it applies to [Hoffman, 1999]. In the area of education, this concept describes the behavior of the teacher. The competency can be defined as having the three features i.e. characteristics, skills, and knowledge. These terms are inter-related and are used interchangeably in the existing literature (Sanchez, 2010).

In 2009, Chong and Cheah published an article titled "framework of value, skill, and knowledge for teacher preparation program". This framework is designed based on strategies which enable the teachers to contemplate on values of teaching and knowledge dissemination and the values and skills required for teaching and learning (Chong and Cheah, 2009).

In their article, Olive and Henson (1980) characterize five main categories of general competencies including communicative skills, basic knowledge, technical skills, executive skills, and inter-personal skills.

Dam et al. (2010) publish an article titled "development of a framework based on teachers' entrepreneurial behavior competency". The purpose of that article is to study the competencies which underlie teachers' entrepreneurial behaviors i.e. opportunity identification, innovative works, and risk management. Based on the literature study, six types of competencies i.e. professional adaptation, professional self-esteem, creative thought, networking skills, team-work skills, and entrepreneurial work environment are included the presented framework (Dam et al. 2010).

Henman and Milanowski (2004) believed that teachers' quality improvement is the logical strategy for students' improvement and success. On that basis, the teacher plays an important role by providing the required background for students' effective learning.

In its 2008 report regarding entrepreneurship in higher education especially in non-business studies, the European Commission tries to answer the question: which are the criteria of good entrepreneurial education? In the section regarding entrepreneurship education, the report notes that the teachers should:

- Themselves be entrepreneurs to some extent;
- Base their educational input on real life experiences (experience-based education method).

In fact, the teachers should have experience in business, and in ideal situations should be able to maintain strong personal relationships with business sectors. The studies suggest that the teachers' performance which finally leads to learning on the students' behalf is affected by internal or external conditions, their efforts, and competencies (Olive and Henson, 1980).

Therefore it is crucial to identify teachers' competencies as the factors which can make changes, and the prerequisite conditions for realization of objectives.

1.3. Teaching-learning process

One of the tasks of education system is to train individuals with critical thinking and the abilities for problem solving. To that aim, university teachers might need to employ methods which are completely different from those upon which they have been educated. In this sense, they should include students as active participants in the process of learning (Sheikhzadeh and Samari, 2010). A university is considered to be entrepreneurial only when the entrepreneurial behaviors are visible in all its aspects. These behaviors should be manifested in university human resources i.e. students, scientific staff, and administrative staff at first hand (Vasefian et al. 2009). The teaching-learning process is defined as the conducted process of interaction between the teacher, learner, and the content which changes the course of behavior in the student (Randolph and Posner, 1979). During this process, the students develop the ability to identify beneficial

opportunities, and the vision, self-esteem, knowledge, and skills are cultivated within the students (Jones and English, 2004). Until before 2002, not many researchers agreed on entrepreneurship being an acquired or natural characteristic. Many researchers studied entrepreneurship education and its methods and published articles, some of which are Sexton and Bowman (1984), Hills (1988), and Vesper and Gartner (1997). The results of these and other similar studies suggest that entrepreneurship and its special aspects are not natural talents and can be cultivated through proper education in schools and universities by means of special programs, licenses, and documents. Also Solomon et al. (2002) emphasize on the role of management and entrepreneurship education in establishment of successful business units (Pretorius et al. 2005). Gibb (1987) states that the usual methods of education employed in business universities are not suitable for entrepreneurship education because these methods prevent concrete and experimental learning in the real life situations. According to Rae (2000), entrepreneurship is an activity-based process whose learning should be based on experience; in this sense, entrepreneurship requires flexible, experimental, and concrete approaches of education.

In their study, Sheikhzadeh and Samari (2010) proposed two different views on the process of production and education. The first one is a static view with an inactive method. In this view, the teaching includes a set of information about realities and a way to explain the observed phenomena, the main task of which is to focus on existing theories, hypotheses, and rules and principles. In other words, it focuses on the current state of science and its increase. The second is the dynamic view which employs active methods. In this view, science is regarded as an active process and activity, that is, a series of stages which scientists pass in confrontation with unknown situations and phenomena. Instead of directly receiving scientific facts, the students are familiarized with the process of knowledge creation. Students play a basic part in active methods of teaching. The teacher takes the role of leader and guide and tries to prepare the conditions for learning to take place. In inactive methods of teaching however, the main responsibility relies on the teacher and the students must obey. In such as system, there is no cooperation and interaction between groups, the personal differences are neglected, and the activity is exclusively carried out by the teacher (Sheikhzadeh and Samari, 2010).

Mwasalwiba (2010) identifies different methods of teaching-learning and classify them as either traditional or innovative methods. Studies suggest that innovative methods such as games and competition, workshops, tours, and field studies are the most suitable methods for cultivation of entrepreneurship; however these methods are less employed. According to Fiet (2000) the reason for

the prevalence of traditional methods is that these methods are easier to implement by the instructors and less expensive for the universities.

Neck and Greene (2011) state that currently, the most common methods of entrepreneurship education are static methods with no feedback which relies on lectures; sometimes successful entrepreneurs are invited as guest speakers in order to make these methods more diverse. Unfortunately, these methods only define and explain entrepreneurship and cannot train successful entrepreneurs. In such approaches, instructors are not proper role models for the students. Considering the procedural and inter-disciplinary nature of entrepreneurship, experimental and analytical instruments as well as scientific methods should be employed in entrepreneurship education (Neck and Greene, 2011). Moreover, another feature of active methods is the application of the educational material to the real life. The results suggest that the use of active methods motivates the students to further their participation and provides grounds for improvement of their learning.

According to Volkmann (2004), entrepreneurial characteristics are not inherited, but they are acquired through education and practice. Therefore, development of entrepreneurial concepts for entrepreneurship education in the universities is vitally important. To that aim, the teaching-learning process would as well be vastly developed in the future (Volkmann, 2004).

1.4. The curriculum

Curriculum is one of the most important elements of higher education. It has a determining role in realization of qualitative and quantitative goals of higher education. Curriculum planning lies at the heart of academic institutions and plays a key part in determining whether those institutions fail or succeed. In this sense, the curriculum is an indicator of universities' progress and responsiveness to ever-changing needs of the society (Lanenburg and Ornstein, 2004). The curriculum is a scientific and social instrument which defines the ways of knowledge transfer as well as explains the purpose and philosophy of education; it also clarifies the scientific policies of an educational institution. Therefore, renovation and reconsideration in curriculum planning is an important issue which helps bring the lesson contents and teaching methods up to speed with the uncertain and changing conditions of today's society (Sabar, 1994).

Ahmadzadeh (2006) studies the extent to which the educational science bachelor's course curriculum focuses on cultivation of entrepreneurial skills in the students. The results suggest that all nine aspects of curriculum planning (including purpose, content, evaluation methods, resources, learning instrumentation, time, space, teaching strategies, and the teacher) along with the specialized lessons of this field of study neglect the cultivation and

development of personal, managerial, and technical skills of entrepreneurship.

In the study of the entrepreneurs' learning style, Begley (2000) concluded that entrepreneurs usually have adaptive learning styles. On that basis he suggests that curriculum planners design 50 percent of the entrepreneurship educational content based on adaptive style, and allocate the rest to convergent, divergent, and absorbing styles.

Kosari and Nowrooz Zadeh (2010) explained that the first step in bachelor course curriculum planning should be to identify needs which demonstrate the gap between existing conditions and ideal conditions in which the education cultivates entrepreneurial skills in the students. Their study on combination of approaches in bachelor course planning focusing on development of entrepreneurship reveals that experts of curriculum planning agree on interdisciplinary approach as the main approach and trans-disciplinary approach as the complementary method.

Edgerton (1990) found out that 83 percent of the teachers using interdisciplinary approach are willing to maintain this method and decline to return to traditional curricula. Etemadzadeh et al. (2009) considered the benefits of interdisciplinary curriculum planning to be high thinking skills, comprehensive understanding of process and content of the curriculum, cultivation of innovation and individual independence, as well as increased motivation for learning.

Alikhani (2010) explained that Iran's higher education curriculum follows objectives such as creating coordination between different curricula, educational transformation in human resources training, and updating the plans and adjusting them to social and economic needs of the country. For that purpose, the following measures should be taken in curriculum planning:

1. Decentralization of curriculum planning: today, curriculum planning has become an important expertise. One of its vital components is the concern with special conditions of each university or regional and local considerations. Moreover, diversity is an important concept in higher education planning. Delegation of authority to universities and holding them accountable to spend their research budget for these purposes paves the way for growth and dynamism in our country's higher education system.
2. Constant and up-to-date re-evaluation of academic fields of study: constant and up-to-date re-evaluation fields of study and lesson content is a necessity in a dynamic educational system. Reconsideration of curriculum planning should be carried out based on a few factors i.e. based on the existing researches so far, ordering the required studies to be carried out, and introduction of new applied and interdisciplinary fields of study.

1.5. Research questions

1. What are the required teacher's competencies for the purpose of entrepreneurship education?
2. How is the teaching-learning process in entrepreneurship education?
3. What are the important factors in entrepreneurship education curriculum planning?

2. Research methodology, statistical population, and sampling method

Regarding the objectives, the present research uses a combined method (qualitative-quantitative) for data collection. In the qualitative section, semi-structured interviews are employed and the interview questions are designed based on the existing theoretical framework and experimental studies. The statistical population in the qualitative phase of the present research (the interviewees) is consisted of experts of entrepreneurship education, key scholars of academic entrepreneurship, and scientific board members who have necessary skills in education.

In the quantitative section of the present study which employs a descriptive-survey method, sampling has been carried out in multiple stages. First, all the universities in Tehran are taken into account; then the ones with management fields of study are identified, and in the end, the teachers who are experienced in entrepreneurship education are selected. Concerning the validity of the research in the qualitative section, the sampling has been conducted until data saturation; as for the quantitative section, using the Cochran's formula and at 95% confidence level ($d=0.8$; $\text{variance}=0.25$), the sample size has been determined to be 72.

3. Findings

3.1. Descriptive statistics

As demonstrated in Table 1, 9% of the participants are associate professors, 66% are assistant professors, while 25% are instructors.

Table 1: Sample characteristics in terms of ranking

Rank	Frequency	Percentage
Associate professor	6	9
Assistant professor	44	66
Instructor	18	25
Total	72	%100

As demonstrated in Table 2, 36% of the members have 1-5 years of teaching experience, 39% have 6-10 years of experience, 5% have 11-15 years of experience, and 11% have 16-20 years of teaching experience.

As demonstrated in Table 3, 50% of the participants have 1-6 articles published, 19% have 7-12, 12% have 13-18, 5% have 19-24, and 9% have 25-30 articles published.

Table 2: Descriptive statistics regarding teaching experience

Teaching experience (year)	Frequency	Percent
1-5	26/13	36
6-10	28/14	%39
11-15	4-2	%5
16-20	8-4	%11
Over 21	6-3	%9

Table 3: Participants' characteristics in terms of articles published

Published articles	Frequency	Percent
1-6	36/18	%50
7-12	14/7	%19
13-18	8/4	%12
19-24	4/2	%5
25-30	6/3	%9
No articles	4/2	%5

As demonstrated in Table 4, 50% of the participants have conducted 1-5 research projects, 9% have 6-10 projects, 12% have 11-15 projects, and 5% have conducted more than 16 research projects.

Table 4: Participants' characteristics in terms of research projects conducted

Research project	Frequency	Percent
1-5	36	%50
6-10	6	%9
11-15	8	%12
More than 16	4	%5
No research project	18	%24

3.2. Instrumentation

The instrument of data collection in the quantitative section of the study is the researcher-realized questionnaire the components of which are extracted from the interviews done in the qualitative section of the study. The information collected by the questionnaire covers personal information, scientific ranking, teaching experience, research records, and number of innovative projects carried out. The items are arranged on a Likert-type scale ranging from very high to very low. The content validity of the questionnaire has been confirmed by the experts in the qualitative section of the present study. In order to assess its reliability Cronbach's alpha has been used. The values of Cronbach's alpha obtained for the subscales of teachers' competency, teaching-learning process, and curriculum at 95% confidence are presented in Table 5.

4. Method of data analysis

To analyze the qualitative data obtained from interviews, open and axial coding method has been used. In the quantitative section, after collection, the data has been analyzed using central indices of mean and standard deviation. In this section, SPSS

software has been used to analyze the quantitative data. Qualitative data analysis was shown in Table 6.

Table 5: Subscales and their Cronbach's alpha coefficient

Subscales	Cronbach's alpha
Teacher's competency	0.95
Teaching-learning process	0.95
Curriculum	0.95
Total	0.95

As demonstrated in Table 6, according to the experts the most important factors of entrepreneurial competency are: teaching-learning skill, entrepreneurial capabilities, entrepreneurial skills, professional competency (entrepreneurial attitude and alertness), and values.

4.1. Entrepreneurial skill and values

Chong and Cheah (2009) offer a framework for competency which is consisted of three parts i.e. skill, knowledge, and value.

1. Skill: training, educational, interpersonal, contemplative, and intellectual abilities.
2. Knowledge: educational background, content, curriculum, student, education, and one's self.
3. Value: belief in the ability of all students to learn, attention to the students, eagerness for continuous learning.

In the study of the dimension of teachers' competency, this research deals with entrepreneurial skills and values (Table 7).

4.2. Entrepreneurial alertness

Tang (2007) defines entrepreneurial alertness to one's ability to collect, transfer and selected business information that leads toward potential opportunities. In 1973, Krazner used the term alertness for identification of entrepreneurship opportunities. Entrepreneurial alertness is the ability to see things others are not able to see (Hosseini, 2011).

4.3. Entrepreneurial attitude

Robinson et al (1991) suggest four entrepreneurial attitudes which are seeking achievement, independence, creativity and self-confidence.

4.4. Active teaching-learning method

In active teaching-learning methods, the human mind is active and the teacher provides a learning condition in which intellectual capabilities and thinking power is strengthened.

There, the relation between groups and sense of cooperation is reinforced, and the learner tries to solve the problems with personal self-esteem, spirit of questioning, conceptualizing, and problem solving. In this method, the spirit of creativity and

independence is elevated. It is the nature of active teaching which turns the class into a center of

thought and thinking training leadership (Soleymanpour, 2005)..

Table 6: Results of qualitative interview data coding and extraction of the components of teachers' competency

Scale	Verbal statements	Extraction of components of teachers' competency open coding	Interviewee codes
Teacher's competency	Ability to present models of entrepreneurship in the classroom Unconventional view toward teaching methods Ability to give appropriate feedbacks to students' learning	Entrepreneurship teaching-learning skills	R8,R5,R3,R2,R1
	Ability for scientific documentation of business experiences Research skills using interdisciplinary approach Ability to create and develop entrepreneurial attitudes Having entrepreneurial characteristics Ability to learn from other people's experiences	Entrepreneurial capabilities	R10,R9,R7,R5,R4,R3,R2
	Teacher's ability to steer up motion among students and create dynamism Having knowledge and expertise in the subject being taught	Entrepreneurial skills	R10,R8,R4,R2
	Having social competency Having innovative attitudes in presenting concepts Ability to recognize students' entrepreneurial competencies	Professional competencies (entrepreneurial attitude and alertness)	R9,R6.R4.R2.R1
	Observation of ethical and professional values in entrepreneurship education by the teachers Motivating the students to commercialize the ideas while keeping their integrity	Professional values	R10,R7,R3,R2,R1

Table 7: Results of qualitative interviews and extraction of the components teaching-learning process

Scale	Verbal statements	Extraction of concepts of teaching-learning process	Interviewees' code
Teaching-learning process	use modern learning methods such as problem solving and exploratory method today, methods of learning should incorporate cooperation and assistance social and life skills should be taught in the classes group teaching methods should be applied successful entrepreneurship models should be used in the process of teaching methods of teaching-learning try to define how	Active teaching-learning method (modern)	R10,R9,R7,R6,R4,R3,R2,R1
	Students' evaluation should be carried out in a way that the change in their knowledge, skills, and behaviors is completely detected	Evaluation accompanied by feedback	R9,R8,R7,R5,R3,R2,R1

Gaugue and Berliner (1984) suggested that quality of learning in active teaching methods, such as group discussion, is higher than passive methods such as lectures, exercises and repetition (Salehi et al. 2009).

4.5. Evaluation and feedback

Black and William (1998) believe that one of the fundamental factors in the promotion of education through classroom assessment, it to give effective feedback to students. Feedback to learner's actions provides them with information upon which he can improve his learning. In fact, the effect of feedback is

so strong that Eggen and Kauchak consider it to be a basic principle in learning and motivation (Rezaei and Seyf, 2006).

According to Table 7, in the process of teaching-learning, the most important factors are methods of active teaching-learning and evaluation accompanied by feedback. Kleit (2001) believes that the main principles of development of academic entrepreneurship are designing new curricula based on economic needs of the society, establishment of relations with experts and industry owners in order to participate them in planning of the mentioned educational courses, directing educational activities

to identify needs, using effective teaching methods, and using comprehensive system of educational content evaluation and assessment (Hosseini, 2011).

4.6. Interdisciplinary curriculum

In an interdisciplinary teaching method, one concept, skill, or process becomes the basis of curriculum organization and other fields of study and expertise are drawn upon to define and explain that issue (Table 8) (Drake and Burns, 2004).

Table 8: Results of qualitative interviews and extraction of the components the curriculum

Scale	Verbal statements	Extraction of curriculum concepts Axial coding	Interviewees' code
Curriculum	reconstruction of curriculum should be based on entrepreneurial process in order to create business entrepreneurship education curriculum should be reconsidered the topics and subjects of lessons should be suitable to the field of study interdisciplinary curricula should be planned the curricula should be designed based on the needs of individuals and society and according to requirements of the scientific study	Curriculum reconsideration and update	R8,R6,R5,R4,R3,R2,R1
		Interdisciplinary curriculum	R9,R8,R4,R3,R2,R1
		Need assessment	R10,R7,R6,R5,R3,R2
	the content of the lessons should push individuals into the realm of practice the curriculum should apply problem-solving approach the curricular approach should be innovative designing interdisciplinary curriculum needs consistency and it should be based on entrepreneurship	Entrepreneurial content	R10,R9,R7,R6,R4,R3,R1
	interdisciplinary curriculum planning requires team work	Participation of stakeholders	R1,R3,R2
	Participation of scientific board members	R1,R2	

The results confirm the positive impact of interdisciplinary curriculum on the attitude of teachers and learners. Ahmadi (2009) argues that interdisciplinary curriculum help the learner with deep and consistent learning of the concepts and prevents one-dimensional understanding of the subjects.

As demonstrated in Table 8, the most important factors of curriculum planning are: content reconsideration and update, interdisciplinary curriculum, need assessment, entrepreneurial content, and participation of stakeholders.

4.7. Analysis of the quantitative data

Table 9 describes the scales and subscales of the questionnaire.

4.8. Findings

Among the studied factors of competency, with 4.30 the entrepreneurial capabilities has the highest

score according to the participants; and the professional competencies has the lowest score (3.88). Among the factors of teaching-learning process, with 4.13 the active teaching method has the highest while the procedural assessment has the lowest score (3.87). Also among the factors of curriculum, the highest score goes to educational need assessment (4.32) and the lowest score belongs to Reconsideration of lesson content and topics (4.15).

5. Discussion and conclusion

The present research aims to study and identify three aspects of entrepreneurship education i.e. teachers' competencies, teaching-learning process, and the curriculum. The experts emphasize on teachers' entrepreneurial capabilities. They believe that although it is not necessary for the teachers to be entrepreneurs, they still need to have some entrepreneurial capabilities.

Table 9: descriptive statistics of the scales and subscales of the questionnaire

Scales	Sub-scales	Mean	Std. deviation
Teachers' competencies	Professional values		0.52
	Entrepreneurial capabilities	4.23	0.35
	Teaching-learning skills	4.09	0.43
	Professional competency	3.88	0.52
Teaching-learning process	Active teaching method		0.41
	Procedural assessment	4.13	0.65
	Performance assessment	3.93	0.60
Curriculum	Educational need assessment		
	Reconsideration of lesson content and topics	4.32	0.51
	Interdisciplinary curriculum	4.15	0.44
	Entrepreneurial content	4.20	0.40
		4.18	0.49

The teachers should be able to improve some characteristics among their students such as entrepreneurial attitude. Also having skills in

entrepreneurship research is another feature emphasized by the participants. Quoting from Schmude and Uebelacker (2001), Vasefian et al. (2009) explain that the evaluation of entrepreneurship education in Germany and the US reveals that despite obvious progress of entrepreneurship education, the conditions of the students are still far from ideal. Only 6 universities out of 78 have had entrepreneurship education programs at desired or excellent levels.

Considering the importance and prevalence of competency-based approach to education, questions emerge regarding the teachers' competencies. For that reason, it is needed that their competencies are identified in order to make individuals and the universities more efficient. This conclusion is in alignment with that of the study by Garavan (1994), Heinonen and poikkijoki (2006). These researchers believe that teacher's task is to develop students' ability to contemplate on their own experience and apply the results on a wider domain and to let students present their own theoretical interpretations. As for teaching-learning process, the experts believe that the traditional methods of teaching-learning are not useful today.

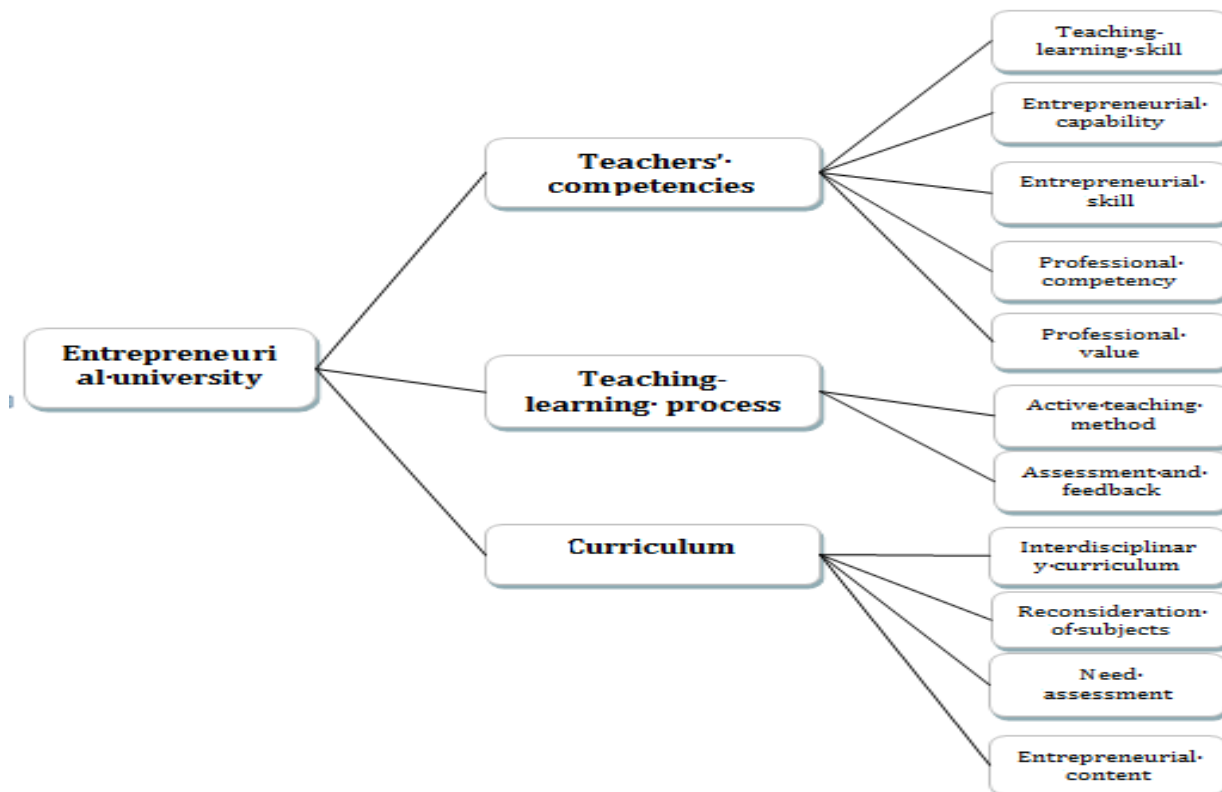


Fig. 1: Research concept model

Considering the changing needs of the society and university's shift of mission toward further entrepreneurship, it is necessary that the academic education processes are reconsidered as well. For that purpose, active teaching methods such as

design-based learning, simulation, computer games, participative learning methods, and invitation of guest entrepreneurs are suggested. Koratco (2005) believes that low quality of entrepreneurship education programs is one of the main challenges of

entrepreneurship education. According to him, the 21st century requires appropriate and innovative methods for entrepreneurial education such as the use of technological advancements. These results correspond to those of the study by Mwasalwiba (2010) who argues that methods of teaching-learning can be categorized as active or traditional. During the process of active methods, students can find their potential talents; this is an output that is not provided in traditional methods. Martin and Lying (1998) explain that the most effective approach to entrepreneurship education is the use of active teaching-learning methods. Concerning the curriculum, the experts emphasize on satisfaction of educational needs before designing the objectives and contents of the curriculum. According to them, the curriculum should be constantly re-evaluated in correspondence to the needs of society, industry, and the market. Jafari Moghadam and Etemadi (2010) carry out a study to determine the educational needs of the students in entrepreneurship. Their results indicate that the curriculum of electrical engineering bachelor's course does not provide the students with necessary entrepreneurial skills. They also believe that due to interdisciplinary nature of entrepreneurship, the planners' familiarity with concepts of management, marketing, industry, and etc. would prove useful in selection of educational content. On the other hand, the teaching materials should be updated in correspondence with changing needs of the society and the extant expert knowledge. Carland and Carland (2010) argue that the lessons presented should not revolve around certain and homogeneous subjects; on the contrary, the lesson should have the ability to change based on learning needs and by the will of the students and teachers (Vafaei, 2010). The results obtained regarding interdisciplinary curriculum are in alignment with those of the studies by Newell (1994), Etemadzadeh et al. (2009), and Rhodes (2001). Aside from the obtained results in this study, some experts point out other important factors such as participation of scientific board members and other stakeholders in design and preparation of curriculum. Briggs (2007) presents some instances of collaborative curriculum planning in educational groups with constant programming. Some of these instances are: design and preparation, or reconsideration of new lessons and programs, informal discussions about expertise, ideas, experiences, and observations regarding the curriculum, participation of experts such as guest speakers in determination of the lesson content, discussion and negotiation with other educational groups or outside stakeholders regarding the proper curriculum planning, and determination or re-evaluation of missions and objectives of educational groups.

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