

# The impact of globalization of university education on entrepreneurship and knowledge-based companies and the provision of the model on Mashhad Ferdowssi university

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## ABSTRACT

**Background and Purpose:** In the developing countries, universities in the second generation are research oriented universities. Activity in turning to third generation universities and entrepreneur is started. In the new age and influenced by the process of globalization and with regard to the social, economic and political conditions, universities and higher education institutions should apply a system that promotes creativity and educates entrepreneurship and innovation for faculty members and students.

**Methodology:** The present study was carried out in two stages. First, by reviewing the scientific literature, the characteristics of academic entrepreneurship and entrepreneurial university were identified and then a valid checklist was prepared. In the second stage, after the validation of the checklist, it was studied in Ferdowssi Mashhad University and finally, it was analyzed by descriptive statistics.

**Research findings:** The results of this study showed that in graduated students the ability of individuals in the field of bureaucracy and education and research in majors is in a good situation, but in relation to the industry, knowledge-based companies need to work harder.

**Conclusion:** The findings indicate that Ferdowssi Mashhad University has started the development of a third-generation university and entrepreneurship based on the designed and applied checklist and adapting to the phenomenon of globalization and its socio-economic-cultural changes, and with regard to the purpose, it is made a plan.

**Keywords:** Academic Entrepreneurship, Ferdowsi University

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## INTRODUCTION

The development of higher education in the country and improvement the quality of higher education followed by the economic, social, cultural and political changes began in such a way that universities were able to solve their problems using their knowledge and meet their own needs and society (1). In this regard, the third-generation universities as the entrepreneur universities began their activities which aimed to train professional and entrepreneurship workforce (2). In Iran, most universities are in the second generation, i.e., research oriented universities (3). Graduates are individuals who can only fill the predefined job gaps (4) and they do not have a considerable activity to turn the university to third generation and entrepreneurship university (3). Currently, with regard to the globalization, social, economic and political conditions have changed. Universities need a system that educates and promotes creativity, innovation and entrepreneurship spirit for students and faculty members (5). Furthermore, turning to an entrepreneur university is the necessity of development and survival in the future. If a university is entrepreneur, scientific research will produce a new service, activity or a new production, otherwise, the scientific research rarely turns to innovation and will be transformed more and more to libraries (6). Therefore, universities should work through conducting and implementing internal and external studies to design a model for their performance and their own infrastructure and consider the environmental conditions. It seems that medical sciences universities due to the different activities in health care services have a wide capacity for creating and expanding entrepreneurship in the health area. However, most of these universities are suffered from lack

of a specific organizational structure for designing and implementing educational, research and promotive programs to increase motivation and also awareness toward the entrepreneurship activities. Nowadays, the subject of entrepreneurship and an entrepreneur university is one of the important issues in the field of management of the country, which in the recent years in the healthcare sector has been paid attention to the entrepreneurship, such as allocation of a package of 11 operational packages of evolution and innovation in medical education as the strategic policies of health education in the Islamic Republic of Iran. To this end, one of the considerable topics in the packages of innovation and development in the medical education is the movement toward third generation and an entrepreneur university (9, 10, and 11). Therefore, all the universities of medical sciences throughout the country have four important objects: reviewing and revision the mission, functions of medical sciences universities based on the model of entrepreneurship universities, engineering processes of medical sciences universities based on the model of an entrepreneur university and finally development of infrastructures and resources of medical sciences universities based on the entrepreneur university model. In addition, the main focus of this package includes review and revision of structure, function, infrastructure and processes of medical sciences universities in the transition to third generation universities (12). Since the necessity of setting goals and packages does not mean the proper implementation of those goals and packages (10 and 13), therefore, in order to monitor and evaluate the progress and movement towards the third generation university and entrepreneur, it is necessary to have a tool for evaluation and adaptation of the medical

sciences universities with the standards of a third-generation university. One of these tools can be checklists including indicators of the third-generation university to monitor the implementation of structural, functional, process and infrastructure standards of medical universities (10). Therefore, this study aimed to identify the entrepreneurship status of Mashhad University of Medical Sciences in terms of structure, function, infrastructure and related processes.

**METHODOLOGY**

This study is cross-sectional in nature and in terms of purpose it is an applied research, which was carried out in two stages. In the first stage, researchers searched Magiran, Scopus, SID, PubMed, Google Scholar, Iran Doc using keywords of the third-generation university, entrepreneurial university during 2000-2016 and obtained articles and sources and after removing repetitive and not related items, a total of 12 articles (3, 5, 7-9 and 14-20) related to the indicators of third generation universities were studied in terms of analyzing the content. Using the process if systemic classification, the indicators of third generation universities were summarized based on the made interpretations. Then, using experts' and professions'

opinions, a checklist of 100 standards in 17 domains and in four structural, functional, infrastructural and process was designed. In order to determine the checklist validity, the content validity was used. To this end, the identified checklist was sent to 15 experts and faculty members at Ferdowsi University, who were interested in the topic. After receiving their comments, 32 standards were removed and the checklist was modified and confirmed. In order to determine the reliability of the checklist, the reliability method was used among the evaluators. For this purpose, the checklist was provided to two groups of evaluators and after the analysis, the agreement coefficient (Kappa) was obtained 96%. In this checklist, 68 questions with a score of 10 for each question were designed that there is no indicator of 0 score. In the second stage, this checklist was studied and completed in the study universities and was analyzed by descriptive statistics. At this stage, the status of universities based on the prepared checklist was compared with the standards of entrepreneurial universities. With regard to the content of designed checklist, it was decided to obtain information by referring to different parts or through the relevant authorities or related documents, websites or organizational charts.

**Findings:** After analyzing the checklist, the results of the studies are presented in Table 1.

Row	Standard type	Standard domain	Studying through	Standard text	Score
1	Structural	Organic structure 10	Interview	Freedom of individuals in the university in the field of responsibilities	5
2	Structural		Interview	Existence of the delegation of authority in the faculties and units	5
3	Structural	Formality 15	Reviewing documentations and interviews	Horizontal and Informal Communication	5
4	Structural		Reviewing documentations and interviews	Low levels of management	0
5	Structural		Reviewing documentations and interviews	Low volume of work procedures	5
6	Structural		Reviewing documentations and interviews	Low volume of regulations	5
7	Structural	Decentralization	Interview	The power of decision making by university students within the domain of responsibility	5
8	Infrastructure	Organization technology	Reviewing documentations and interviews	Availability of advanced and modern facilities at the university	10
9			Reviewing documentations and interviews	The presence of technology in the university's organizational chart	10
10			Reviewing documentations and interviews	The existence of appropriate organizational positions with the field of technology and entrepreneurship	10
11	Process	Strategic program 30	Reviewing documentations	Existence of the entrepreneurship discussion in the programs of medical sciences universities	10
12	Process		Reviewing documentations	Existence of the entrepreneurship discussion in the strategic plan of medical sciences university	10
13	Process		Reviewing documentations	The existence of a one-year and five-year operational program at the research deputy	10
14	Functional	Development 20	Reviewing documentations	Entrepreneurship discussion in recruiting new workforce	10
15	Functional		Reviewing documentations	Entrepreneurship discussion in monitoring and evaluating the university performance	0
16	Functional		Reviewing documentations and interviews	Income from entrepreneurship of university	0
17	Functional		Reviewing documentations	Workshops of thought-provoking in the field of entrepreneurship	10
18	Functional	Education 20	Reviewing documentations	Entrepreneurship workshops and courses for teachers, staff and students	5
19	Functional		Reviewing documentations	Entrepreneurship meetings for professors, staff and students	5
20	Functional		Reviewing documentations	Entrepreneurship conferences for professors, staff and universities	5
21	Functional		Reviewing documentations	Meetings for introducing knowledge-based companies for professors, staff and students	5

22	Functional		Reviewing documentations	Meetings for intellectual property rights for professors, students and staff	5
23	Functional		Reviewing documentations	A problem solving workshop for professors, staff and students	5
24	infrastructure	Financial 35	Reviewing documentations and interviews	Independent university budget for entrepreneurship	0
25	infrastructure		Reviewing documentations and interviews	Sufficient financial resources to support entrepreneurial students, professors and staff	5
26	infrastructure		Reviewing documentations and interviews	Sufficient financial resources to support students and professors for attending International Entrepreneurship Conferences	
27	infrastructure		Reviewing documentations and interviews	Sufficient financial resources to support research projects related to the entrepreneurship of professors and students and staff	5
28	infrastructure		Reviewing documentations and interviews	High financial resources for creativity and innovative ideas of individuals	5
29	infrastructure		Reviewing documentations and interviews	Sufficient funding and budget for research	10
30	infrastructure		Reviewing documentations and interviews	Existence of foreign capitals	5
31	Process	Promotion 10	Reviewing documentations and interviews	Informing in the area of entrepreneurship	10
32	Functional	Graduates 10	Reviewing documentations and interviews	University graduates association	0
33	Functional		Reviewing documentations and interviews	University graduates website	10
34	Functional		Reviewing documentations and interviews	Exhibition of innovations by university graduates	0
35	Infrastructure	Facilities 10	Reviewing documentations and interviews	Accessibility of books, articles, libraries, and laboratories and etc.	10
36	Functional	Extracurricular activities 10	Reviewing documentations and interviews	Possibility of visiting factories and offices of industry for students and university professors	10
37	Functional	Extracurricular activities 10	Reviewing documentations and interviews	Scientific trips related to entrepreneurship	0
38	Functional		Reviewing documentations and interviews	Entrepreneurship competitions for students and professors	0
39	process	Curriculum planning 35	Reviewing documentations and interviews	Possibility of choosing the course of familiarity with entrepreneurship for all the students	10
40	process		Reviewing documentations and interviews	A teamwork in the class in the field of entrepreneurship	10
41	process		Reviewing documentations and interviews	Training job skills and management skills of educational majors	10
42	process		Reviewing documentations and interviews	Existence of some courses in the form of a workshop	5
43	process		Reviewing documentations and interviews	Existence of creativity and imagination trainings	5
44	process		Reviewing documentations and interviews	Training of creating business	10
45	process		Reviewing documentations and interviews	Innovative and modern methods in education	5
46	Process		Reviewing documentations and interviews	Training of labor market requirements for students	5
47	Process	Environment 15	Reviewing documentations and interviews	An encouragement environment for entrepreneurship in university	10
48	Process		Reviewing documentations and interviews	Possibility of trials and errors for students	5
49	Process		Reviewing documentations and interviews	academic environment for accepting failures	5
50	Functional	Relation of industry and society	Reviewing documentations and interviews	Direct financial support from the industry sector	5
51	Functional		Reviewing documentations and interviews	Existence of an office for the communication with the industry at the university	10
52	Functional		Reviewing documentations and interviews	The relationship between education, research and industry	10
53	Functional	Management 25	Reviewing documentations and interviews	The management support of high-risk projects	5
54	Functional		Reviewing documentations and interviews	Management interest in new and creative ideas	10
55	Functional		Reviewing documentations and interviews	Educational, financial and marketing support for students and professors	5
56	Functional		Reviewing documentations and interviews	Using and applying management of ideas	5
57	Functional		Reviewing documentations and interviews	Management tolerance in the field of derivation from rules	5
58	Functional		Reviewing documentations and interviews	Existence of necessary motivations of management to utilize resources for entrepreneurship	10
59	Structural	Units and	Reviewing documentations	The presence of entrepreneurship center at the	5

		committees	and interviews	university	
60	Structural		Reviewing documentations and interviews	The existence of entrepreneurship core in hospitals	10
61	Structural		Reviewing documentations and interviews	The existence of entrepreneurship core in health centers	5
62	Structural		Reviewing documentations and interviews	The existence of entrepreneurship core in colleges	5
63	Structural		Reviewing documentations and interviews	Existence of science and technology park	5
64	Structural		Reviewing documentations and interviews	Existence of development center at university	5
65	Structural		Reviewing documentations and interviews	Existence of supporting unit of intellectual property	5
66	Structural		Reviewing documentations and interviews	Existence of entrepreneurship information bank	5
67	Structural		Reviewing documentations and interviews	Existence of job facilities	5
68	Structural		Reviewing documentations and interviews	Existence of idea bank at the university	5

**Evaluation Checklist for Mashhad University of Medical Sciences in terms of Academic Entrepreneurship:**

Research findings: after analyzing the completed checklist in the studied universities, the results are presented in Table 1.

The standards in this checklist are divided into four categories: structural, functional, process and infrastructure. Then, they are evaluated using descriptive statistics. Based on the standards of this research, studying of the universities indicates that in Mashhad University of Medical Sciences, out of total 680 grades, it was obtained 480 grades, which is generally in a good state of entrepreneurship. Based on the results of the research, Ferdowssi Mashhad University in structural dimension obtained only 120 scores from a total of 170 scores, in the functional dimension, 160 scores from 250 scores, in process dimension, 110 scores from 150 scores and in infrastructure dimension, it was obtained 90 scores from 110 scores. As it is obvious, the standards in this checklist are divided into four categories: structural, functional, process and infrastructure, then they were analyzed using descriptive statistics. According to the obtained standards in this study, the results showed that Mashhad University of Medical Sciences achieved 470 points out of a total of 680 grades, which is in general in an average situation. According to this university, Mashhad University of Medical Sciences in structural dimension obtained 150 scores out of 170 scores, in functional dimension, 180 scores out of 250 scores, in process dimension, 120 scores out of 150 scores and in infrastructure dimension, it was 90 scores from 110 scores. In the field of organic structure, it was obtained 10 scores from 20 and in the field of formality was 25 scores from 40, and in the field of decentralization was 5 scores from 10, and in the field of units and committees of third generation obtained 45 scores from 100. In the functional dimension, it was obtained 20 scores from 40, in the field of training courses was 50 scores from 60, in the field of graduates was 20 scores from 30, in the field of extracurricular activities was 20 scores from 30, in the field of communication with industry and society was 15 scores from 30 scores, in the field of management support was 30 scores from 60, in the field of priority of entrepreneurship for university was 30 scores from 30, in the field of promotion and planning academic courses was 60 scores from 60, in the field of university environment was 20 scores from 30 scores, in infrastructure dimension in

organization's technology was 30 from 30, and in the field of facilities and financial resources was 60 possible scores from 80 scores.

**DISCUSSION**

Due to the fact that the content of the checklist is in the form of a review of the articles, the findings of this research, which are designed as a checklist, are in consistent with the findings of other studies and it is necessary to pay attention to its content as a standard (3, 5, 7-9 and 14-20). Findings indicate that Ferdowsi Mashhad University has considered the organization technology, entrepreneurship in university strategic plans, promotion and awareness of entrepreneurship, the possibility of access to books, articles, libraries and laboratories. However, there should be more attempts in the field of organic structure, formality, decentralization, development of training courses, financial resources, graduates, extracurricular activities, an encouragement environment for entrepreneurship, communication with industry and society, supporting entrepreneurship activities, and the existence of necessary units and committees. It can be said that organizational technology is the most important point of university strength and in the discussion of administrative bureaucracy can be considered as the most important point of attempting. According to research, it seems that in compared to the past universities are developed in some cases but they have not made any significant progress in moving toward the third-generation university (16). According to this research, there are signs of determination of management to start the entrepreneurship process in Ferdowsi Mashhad University. About the relationship with industry, according to research in advanced countries, attention to the relationship between university and industry has always been considered as an important issue (017). It can also be pointed out that generally in Iran, universities do not show a good attraction in the field of working with the industry part, and in contrast, the industry does not consider working with universities as appropriate issue, while the proper relationship between both industries and universities can lead to the development of both of these sectors in such a way that university and industry will achieve their own benefits. Therefore, according to research in the area of improving the cooperation between university and industry,

entrepreneurship can be useful in this part (18). In other words, entrepreneurship can turn the theoretical research findings into action. In the context of an encouragement environment of entrepreneurship, the entrepreneurial university has an attractive content, and suggests that facilities, customs, and atmosphere create fruitfulness for motivating and stimulating entrepreneurship (19). This issue makes an improvement for the university that aligns its self with the changes around itself. In relation to the graduates, the goal is to allow people to have a skill and ability to work in the business market and also provide a new job. The entrepreneurial university naturally should know the current quality of the society and accordingly make a plan to get the optimal quality. Therefore, the entrepreneurial university must understand the needs of markets and then try to meet those needs. In this regard, coordinating the university curriculum with the market need can be effective. Furthermore, the entrepreneurial university should also consider motivation and economic growth. Essentially, the university atmosphere should be supportive for entrepreneurs in any way and provoke people to guide their efforts in a desired size or even more (20).

## CONCLUSION

The findings indicate that Ferdowsi Mashhad University, considering the content of the designed checklist, has focused on entrepreneurship and started moving to the third-generation university. Although these measures are not enough, they are indicative of the beginning of this process. In order to achieve this goal, it seems that universities should also establish units and committees. For example, in order to support graduates and students for material and spiritual assistance, setting up associations and groups is essential. In addition, management levels and management pyramid should be properly mapped. In many organizations, including universities, the pyramid has a high height that should be reduced. Now, there is no good relationship between university and industry. It seems that there is a sufficient capacity at universities and the context is provided for research. In addition, lack of the relationship with industry is a big problem, which should be more considered. Today, it seems that industry needs to prioritize the need and relationship with university to compensate their backwardness. According to this research and obtained information in the field of administrative bureaucracy, status of graduates, the level of individuals ability, the status of education and research in academic fields, and also relationship with the industry and knowledge-based companies measures should be taken.

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