

THE IMPACT OF GLOBALIZATION OF UNIVERSITY EDUCATION ON ENTREPRENEURSHIP AND KNOWLEDGE-BASED COMPANIES AND THE PROVISION OF THE MODEL

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ABSTRACT

Background: Nowadays, universities are not only the place for producing knowledge, but also they must take steps to adopt global standards in order to play their role in meeting social needs. This research was conducted with the aim of investigating the impact of globalization of university education on entrepreneurship and knowledge-based companies and the provision of the model. Methods: The present study is a mixed method type with two qualitative and quantitative phases. In the qualitative phase of the research, six experts and professionals related to the research topic were selected by snowball sampling method and interviewed. The obtained results were analyzed using Strauss and Corbin's three-step coding method, and the related model was designed. In the quantitative phase, a researcher-made questionnaire in former phase was provided for 384 students of the universities of Medical Sciences of Mashhad, and Azad university of Mashhad, selected by stratified random sampling. Descriptive and inferential statistics and SPSS-19 and Smart PLS-3 software were used to analyze the data. Results: According to the research findings, 293 participants were men and almost half of them had a bachelor's degree. Also, the significance level for the relationship between the globalization of university educations and entrepreneurship, the correlation between the university education globalization on the development of Knowledge-Based companies and, finally the relationship between entrepreneurship and the development of Knowledge-Based companies were less than 0.05. Conclusion: Regarding the role of Knowledge-Based companies in the economic and scientific development of countries and the impact of universities on supporting these companies, it is suggested that universities, by approximating themselves to the global criteria, play their role in advancing this route.

Keywords: University Education Globalization, Entrepreneurship, Knowledge-Based Companies

INTRODUCTION

Higher education is a critical driving force for sustainable development and moving towards a community that has a strategic role. In addition, higher education plays a determinant role in the competitive advantage of countries at the regional and international levels. In this regard, the universities are expected to, while paying attention to the mentioned aspects, consider their social responsibility more than before (Gani, quoted by Bazargan, Ameri, 2010: 12). On the other hand, concurrent with the phenomenon of globalization, the need for the transformation of higher education institutions and more emphasis on the international cooperation of universities and higher education institutions has been done (Bazargan, 2007: 12). Globalization of the university is the process of integrating the international and cultural dimensions with the goals, functions and services of the universities (Knight quoted by Knight,

2007: 214). The globalization of higher education system, in addition to its effects on the faculty members and students, causes widespread structural changes, as a result of which it deserves that the universities are evaluated by an international look in order that they reach the global standards gradually and play a role in proportionate with them (Arasteh et al., 2008: 26, Neley, 2007). Iran's higher education, despite the previous advances during the last three decades, still has a long way to the desirable global standards which necessitates a proper understanding of the existing conditions and the principled planning to approximate educational standards to the international level (Javdani, 2009: 17).

In addition, in today's highly evolving world, knowledge and innovation are considered as the most fundamental factors of advancing in the industrial and economic arenas. A country's economy is flourished when the necessary context for innovation and presence in global competitive markets is provided. Moving toward innovation and creating change in the combination of products and services lies within the scope of the activities of Knowledge-Based business. Hence, Knowledge-Based businesses play an important role in the effectiveness of production, the solidification of knowledge in products, the promotion of economy and welfare level, the generation of wealth and value added in a community. In Knowledge-Based businesses, economic growth and job creation are realized in line with innovation capacity. This means that research and development achievements are continuously transformed into new product, process, or systems through investment, and the access to investment capacities for entrepreneurs and researchers is increased. This is an important factor in creating innovation and the exploitation of the power of technology in the national economy. Based on the rapid adaptation to the environmental changes, in this view, the university is known as the clear distinction with traditional universities in how to manage it, performing new activities based on the development of entrepreneurial culture, participation in economic development by investment, creating job, and hence increasing the level of welfare, and also reducing social corruptions (Guro, 2015). Also, the Entrepreneur University due to its economic outputs such as patent, advantage contracts, generative companies, employment creation, and also the mechanisms of transferring science and technology to the industry is of particular importance in the knowledge basis economy (Tijzan & Sauss, 2006; Alken, 2015). Entrepreneurship has a direct impact on the economic and social development of the people. Entrepreneurship that causes entrepreneurial tendencies and activities at organizational level has been recognized as an important element in economic development, wealth creation and performance improvement (Entrepreneurship Article). Entrepreneurship can be important for the revival and promotion of companies' performance, and can also affect the economy through increasing productivity, improving performances, creating new industries and increasing international competition (Antoncic & Histrich 2003). An entrepreneurial organization has features like encouraging innovation and risk aversion, learning from mistakes and flexibility. On the other hand, there are limitations such as the incompatibility of relationships with the organizational structure and the lack of risk aversion of senior managers, on the route of moving towards entrepreneurship in companies (Khanifar, 2011). Therefore, with regard to the mentioned points and the necessity to address issues raised in the international dimension, the importance of moving towards the third millennium universities, many advantages of entrepreneurship especially in the field of health and the lack of research that coherently identifies the factors affecting the medical sciences universities to become entrepreneur, this



study was conducted aiming to determine the impact of globalization of university education on entrepreneurship and knowledge-based companies and the provision of the model.

METHODS

The present study is mixed method type and has two qualitative and quantitative phases. In this study the researcher firstly intends to identify the desirable approach for the globalization of education using interview with academic and organizational experts (qualitative stage). Then by using the obtained results, design a tool and implement it on the statistical sample to validate the obtained model (quantitative stage), it can be said that the research method used is the combined research method in terms of data type.

Qualitative phase

Participants in the qualitative stage includes twelve people divided into three groups: the experts in the field of management (especially in the field of human resource management, organizational behavior and strategic management), university professors and students, and the managers of Knowledge-Based companies. The data collection tool was interview, and the sample size was determined according to the saturation level. The researcher continues to interview as long as more interviews lead to newer data. Otherwise, the interview will be stopped. Therefore, while the sampling is purposeful, snowball sampling method was also used and the interviewees were asked to introduce individuals who can provide appropriate qualitative data for us in this regard. Before beginning the interview, a summary of the research plan, the results of reviewing the research history, along with the goals and questions, were emailed to the interviewees for initial preparation, and at the beginning of the interview session brief descriptions were also provided. Then, the interview process was conducted. In order to record qualitative data and for more concentration of interviewers on the interview process, and with the permission of the interviewees, all interviews were recorded, and the notes of key points of each interview were taken.

To ensure the accuracy of the data, according to Guba and Lincoln (1985), four criteria including Validity, Transferability, Reliability and Impartiality were investigated.

In order to ensure the validity of research in the subject selection stage, the researcher investigated theoretical foundations and study background in the field of designing the model of university education globalization and its impact on entrepreneurship and Knowledge-Based companies and designed the research questions based on the extracted model from the history. Also various books and articles were studied on the methods of designing and conducting interviews and the current research planning was conducted based on the practical guidelines of these texts and consulting with experts in this field. In addition, in order to increase the research validity, the researcher, after ending the interviewees' explanations, expressed his perception of the interviewee's statements in order to ensure the accuracy of the statements expressed with the interviewee's confirmation. Also, during the interview process, in order to remove ambiguity and for more clarification, the follow-up questions such as "What do you mean by ...?" or "Please explain more in this regard?" were used.

Also, to calculate the reliability of performed encodings, the retest reliability method and the agreement reliability method between the two coders (inter-subject agreement) were used. Based on the results, the reliability of retest was 93% and the reliability of agreement between



the two coders was calculated as 87%. Therefore, the analysis reliability ratio of performed interviews is appropriate.

In order to confirm the transferability of this study, the characteristics of the globalization of academic education as well as the participants were described, so that other researchers could decide on the application of the findings of this study in similar environments with the necessary information.

To analyze the data obtained from the interview, Strauss and Corbin (1998) three-stage coding method was used as open, axial and selective coding. In the analysis of qualitative data, the following steps were followed: 1) reviewing data 2) organizing data, 3) coding data, 4) classifying data, 5) creating minor categories, 6) creating main categories or major axes, and 7) compiling a report. In the open coding step, the texts were first reread carefully. The researcher reviewed the data line by line and specified and coded the main concepts in each line or sentence. In the open coding stage, the extracted codes are entitled according to the conceptual approximation and the expression of a common concept is entitled under a specific category. After this stage, it was also tried to classify the categories into larger conceptual categories. In fact, entitling the categories was performed by the inspiration of theoretical foundations and research empirical history, the characteristics of university education globalization, as well as the semantic relation of codes. Finally, the researcher, with regard to the obtained results of the interviews, designed the model of university globalization.

Quantitative Phase

In this stage, after conducting the qualitative research and developing the questionnaire, the quantitative method was used to test the proposed model for university education globalization and its impact on entrepreneurship and Knowledge-Based companies.

The statistical population of this research includes 5000 students of Mashhad University of Medical Sciences at the end of June 2018, of which 384 people by using the Cochran sample size determination formula and based on almost 95% confidence, maximum variance and 5% permissible error were calculated and by stratified random sampling method were selected (according to insurance, treatment, medical documents sections, hospital and clinics). In the next stage, by using the assignment sampling formula proportionate with the categories, the sample size of each department of the organization from the total sample size was specified.

A researcher- developed questionnaire was used to collect data. The basis of making the questionnaire of present research is the components identified in the research qualitative stage presented in the conceptual model. In fact, the main structure of the questionnaire is the same components and sub-components of the research conceptual model. In this regard, it has been attempted to extract most of the items directly from the text of interviews. Also, the relevant specialized texts and research literature were used to complete the questionnaire. The present research questionnaire consisted of 50 questions and was designed and implemented according to the 5-point Likert's scale. In order to ensure the validity of questionnaire, content validity and experts' opinion were used. Cronbach's alpha coefficient was used to investigate the reliability of questionnaire. For this purpose, the final form of the questionnaire was performed on 30 people of statistical population and then the Cronbach's alpha coefficient was calculated equal to 0.867, which confirms the reliability of research tool.

Descriptive and inferential statistics were used to analyze the data. In the descriptive statistics section, the mean and standard deviation were used and in the inferential statistics section, the



confirmatory factor analysis with the aid of Smart PLS-3 software as well as single-variable t test with the aid of SPSS-19 software were used.

FINDINGS

According to the findings of the study, 293 (76.3%) of respondents were men, and 91 (23.7%) of them were women, most of whom (65.6%) were under 40 years old. Respondents' educational status has also been presented in Table 1.

Table 1: Frequency Distribution of Respondents in Terms of Their Educational Status

Education	Frequency	Percentage
Diploma	29	7.6
Associate	45	11.7
Bachelor	175	45.6
Master	108	28.1
Ph.D.	27	7.0
Total	384	100.0

Table 2: Pearson Correlation Test Results to Investigate the Relationship between University Education Globalization and Entrepreneurship

Correlations			
Entrepreneurship	Globalization		
.976**	1	Pearson Correlation	Globalization
.000		Sig. (2-tailed)	
384	384	N	
1	.976**	Pearson Correlation	Entrepreneurship
	.000	Sig. (2-tailed)	
384	384	N	

Regarding the results of Table 2, Pearson correlation coefficient for the two variables of the university education globalization and entrepreneurship is 0.976. The value of observed significance (sig) number is smaller than 0.01 and it is actually zero, which is less than the standard significance level (0.05). Therefore, there is a significant relationship between these two variables at the 99% confidence level. Considering that the correlation coefficient between these two variables has a positive sign, it can be concluded that the changes of these two variables are positive type and have the same direction that is, by using the desirable university education. By the way, the entrepreneurship has also been increased.

Table 3: Pearson Correlation Test Results to Investigate the Relationship between the University Education Globalization on the Development of Knowledge-Based Companies

Correlations			
Development of Knowledge-Based Companies	Globalization		
.982**	1	Pearson Correlation	Globalization
.000		Sig. (2-Tailed)	



384	384	N	
1	.982**	Pearson Correlation	Knowledge-Based
	.000	Sig. (2-Tailed)	
384	384	N	

Regarding the results of Table 3, Pearson correlation coefficient for the university education globalization on the development of Knowledge-Based companies is equal to 0.982. The value of observed significance (sig) number is smaller than 0.01 and it is actually zero, which is less than the standard significance level (0.05). Therefore, there is a significant relationship between these two variables at the 99% confidence level. Considering that the correlation coefficient between these two variables has a positive sign, it is implied that the changes of these two variables are positive type and have the same direction.

Table 4: Pearson Correlation Test Results to Investigate the Relationship between Entrepreneurship and the Development of Knowledge-Based Companies

Correlations			
Entrepreneurship	Development of Knowledge-Based Companies		
.963**	1	Pearson Correlation	Development of Knowledge-Based Companies
.000		Sig. (2-Tailed)	
384	384	N	
1	.963**	Pearson Correlation	Entrepreneurship
	.000	Sig. (2-Tailed)	
384	384	N	

Regarding the results of Table 4, Pearson correlation coefficient for the two variables of entrepreneurship and the development of Knowledge-Based companies is equal to 0.963. The value of observed significance (sig) number is smaller than 0.01 and it is actually zero, which is less than the standard significance level (0.05). Therefore, there is a significant relationship between these two variables at the 99% confidence level. Considering that the correlation coefficient between these two variables has a positive sign, the changes of these two variables are positive and have the same direction.

DISCUSSION

This study was conducted to investigate the impact of globalization of university education on entrepreneurship and knowledge-based companies and the provision of the model. Based on the findings of current research, structural solutions are among the factors affecting the entrepreneurship of Knowledge-Based companies. This is consistent with the results of the research by Kroll and Liefner (2008) indicating the impact of generative companies and governments' support on commercialization success. Also, according to the results of another report by Jacob et al. (2002), changing the structure of universities from a rigid and formal structure to a flexible and creativity encouraging structure has created a smoother pathway to make the researchers' ideas to a commercial product. The results of this research also indicate the point that is proportional to the phenomenon of globalization, the structural factors in the



studied universities (Mashhad) have been modified, improved, and promoted. Also, there was a significant positive statistical relationship between organizational structure and globalization. Based on the findings of present research, the environmental factors and managerial solutions in the direction of commercialization of knowledge and in the direction of the globalization of higher education have been accepted, that corresponds with the research results of Han and Sun (2003). This indicates the impact of environmental and functional factors on new technologies and the support of government from the commercialization of exports and imports. Also, factors such as commercialization management, proper organizational culture, research quality and access to financial resources have been demonstrated be effective in commercialization success. (ref. Fakor, 2007). This is consistent with the results of the present research

Based on the findings of present research, environmental strategies are considered among the cases that may facilitate the commercialization of knowledge, which is consistent with the research results of Flumen (2007), indicating the impact of risk aversion investment funds of growth centers on the commercialization process (22). Also, according to Grady's research results (2002), environmental factors including market and supportive institutions affect entrepreneurship and commercialization. The findings of Jahed and Varasteh (2013), which show the impact of external organizational factors including governmental powers, economic forces, educational system, competitiveness rank, and others cases are consistent with the results of the present research. The studied university proportionate with the phenomenon of globalization, has modified, regulated and promoted the environmental factors affecting entrepreneurship, removed barriers and identified and used facilitating factors, in such a way that there was a statistical positive correlation between the phenomenon of globalization and entrepreneurship. Based on the findings of the present research, legal solutions are among the cases that facilitate the commercialization of classified knowledge and are based on the phenomenon of globalization, which is consistent with the results obtained from the research of Siegel et al. (2003), indicating the tendency of technology transfer offices towards incentive service compensation and the provision of reward for the participation of faculties in technology transfer through valuing the permissions royalty. According to Bandarian (2007), the existing regulations facilitating commercialization and entrepreneurship in relation to financial and administrative regulations and rules, contracts and legal requirements supporting academic entrepreneurship and the commercialization of knowledge and intellectual property rights require further strengthening. In fact, government can provide the necessary legal infrastructures for the development of university entrepreneurship through strengthening the laws that are aimed at preserving intellectual property rights, which is consistent with the results of the present research, and the necessary legal infrastructures for the development of university entrepreneurship proportionate with the process of globalization phenomenon in this regard was largely provided.

With regard to the obtained results and with the aim of creating social changes and much more economic and social exploitation of the available scientific potentials in various parts of the universities of the country, it is necessary to follow-up the commercialization of research results more seriously. This requires accurate recognition of the underlying conditions and the factors that guarantee the success of commercialization. Considering that structural solutions are in a more appropriate position than other solutions, universities can exchange information



and create a joint cooperation between them through creating a communication network between university researchers and commercialization activists, They can also create information infrastructures, provide information and research needs of production and service organizations for researchers, or make possible the exchange of ideas and research findings at national and international levels through creating virtual networks. With regard to the role of social, environmental and managerial solutions in the commercialization of knowledge, universities by forming support fund within the university can finance research projects in order to facilitate the commercialization process in various areas. It is also desirable that the university approve compiled and specific rules on intellectual properties and protect them, so that the researchers commercialize their findings more confidently and, by localizing these models in the globalization era, play their dynamic and effective role, in order to remain on the competition arena constantly and provide more satisfaction of processes owners, students, professors, faculty members, managers and governmental authorities and the country. Considering the research goals, the obtained results of the research hypotheses test in relation to hypothesis 1 of the research, the relationship between the two variables of the organization and the globalization of university education, correlation coefficient is equal to 0.852, which is statistically significant. There is a significant statistical relationship between the two variables at the 99% confidence level, which means that proportionate with the phenomenon of globalization, the universities have created the readiness for desirable changes in organizational respect, and by increasing the use and application of organizational components, university education indicators will also be increased and promoted. In accordance with the phenomenon of university education globalization, environmental variables have also been changed and promoted, and the direction of changes between these two variables has been the same; that is, globalization has led the environmental conditions to be improved in accordance with it, which has positive impact on the entrepreneurship of university Knowledge-Based companies. Globalization has led to the promotion of the organizational structure variable and the correlation coefficient between these two variables has been positive and the research hypothesis has been confirmed. In line with the phenomenon of globalization, university education (higher education) has been modified and promoted, and the extent of entrepreneurship has been promoted in line with globalization. The studied university environment, in line with the globalization of higher education, has performed social changes corresponding with globalization, and the entrepreneurship of Knowledge-Based companies has also been promoted. The phenomenon of university education globalization has caused the entrepreneurship of university Knowledge-Based companies to be promoted in line with the customers' need and university goal, and has used the factors affecting entrepreneurship at all levels, and identified, modified, and eliminated the inhibitor factors.

CONCLUSION

Nowadays, universities should not only provide education and research, but also, they need to learn continuously. They should also cooperate with companies to improve the required innovation and empowering. In addition to all these expectations, universities should pay attention to various social issues. Therefore, universities are becoming multi-faceted



institutions with multiple functions. On the other hand, the indicators of university education globalization corresponding with knowledge-based companies have been developed and, as a result, the entrepreneurship has been advanced with the phenomenon of globalization. Taken together, it is recommended that the universities of other regions also pay attention to the globalization of university education and develop the educational resources and contents of faculty members and educational-research infrastructures in line with the phenomenon of education globalization.

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