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INVESTIGATING THE EFFECTIVE FACTORS IN CREATION OF A PIONEER UNIVERSITY

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ABSTRACT

This study aims at investigating the effective factors in creation of a pioneer university in Iran in order to utilize planning and politicizing in higher education. This research has mixed qualitative and quantitative methods. The statistical population of this research consists of 4288 managers and faculty members in branches of Islamic Azad University in District 8 which has a comprehensive grade. The samples are obtained equal to 344 according to Cochran Formula. This research has stratified cross sectional sampling method including 84 managers and 260 faculty members. The researcher-made questionnaire containing 167 questions is the research tool in this research. The data is analyzed by descriptive statistics including the mean, mode, and variance, and also by inferential statistics such as the exploratory factor analysis and confirmatory factor analysis. Afterwards the structural equation model is used to provide a model for pioneer university in Iran. The results indicate that the management and leadership style, educational factors, research factors, human resources, budget and infrastructure and technology are the major factors for creating the university pioneer.

Keywords: *Effective Factors, Pioneer University*

INTRODUCTION

Undoubtedly, the higher education system plays the key role in development of society (Parirokh and Fattahi, 2005). Several decades of research around the world have led to the understanding of this fact that most of the universities can play various but important roles in innovation and development of country according to the economic, cultural, social and political dimensions. Nowadays, the role of universities is beyond the past and can play the role in all aspects of society including the politics, culture and economy and become as the origin of development in promoting the social values, science and technology. The universities play the major roles in cultural development and promotion of society, enriching the public culture for development of scientific culture, preserving, transferring and rethinking the traditions and the past cultural heritage as well as the revitalization of society.

Furthermore, the university develops the society because it covers the elites and experts in any society and manifests the most excellent justice demanding, injustice controversy, justice demanding and ideal demanding in noble generation of students. The efficient human resource is among the requirements of development in each country; and with respect to the movement of global economy towards the knowledge-based economy, the high-quality human resource is the most important competitive factor in each country. The designed mechanism for acquisition of experts by developed countries is one of the signs for the importance of efficient human resource (Jafari *et al.*, 2011)

The universities are responsible for training the required human resource; and according to the important role of human resources in the local movement towards the progress, the universities can be considered as the most important infrastructures of local development. It should be noted that the university is not only an enterprise, which supply the expert human resources for society and firms, but it is also an institution which can lead the movement and create the development in cultural, social, political and economic infrastructures of community. Furthermore, it can also be the center for creating the proper models of social behavior, protecting the scientific and cultural traditions of society, the factors for deepening the social consensus, improving the quality of people's lives, the developer of idea exchange level and experiences within the community and the main factor of institutionalizing the science in the society.

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Furthermore, it is noteworthy that the success of university in doing the tasks is achieved when the two wings of quantity and quality in this body are coordinated with each other and no one is sacrificed for another.

The quantity-orientation prevents training the qualified students with required abilities. Moreover, it avoids the qualitative growth of products and providing the research and education service. On the other hand, the mere quantity-orientation covers the creation of equal educational opportunities and limits the higher generation of youth and the quantity of specialized service in university system (Arasteh *et al.*, 2008).

However, the today's higher education system is facing with challenges which should be taken into account according to its important role in development. The existing challenges and problems are as follows:

1. Graduates' unemployment;
2. Inefficiency of products by universities;
3. Lack of productivity at universities;
4. Leaving the country by elites and imposed cost on the country;
5. Lack of efficient cooperation between the university and industry, and ...

The main issue is that where we should search for the root of these problems? Should we search it in students, professors, policies, curricula and structure of higher education?

Based on the review of studies and research literature, the researcher believes that the structures governing the local higher education do not create the motivation for changing the universities in desired path; and these problems will continue to exist as long as these structures are not modified.

Therefore, since the university and higher education are considered as the fundamental factors are local development, and due to their key roles in developing the future professionals in Iran, this study seeks to investigate the factors which create the pioneer university.

It seems that the findings of this research can be the bases for developing the policies and educational planning in the country for higher education institutions including the Ministry of Science, Research and Technology, the Ministry of Health, and Islamic Azad University.

MATERIALS AND METHODS

In this study, the researcher utilizes both quantitative and qualitative methods in order to collect and analyze data, integrate the findings and conclude the subject of research.

At the first stage, a list of factors affecting the creation of pioneer university is created based on the previous research and literature inside and outside the country, and then a list of factors affecting the creation of pioneer university is provided for experts at department of education sciences after determining the primary factors in order to select the factors affecting the creation and design of pioneer university model and provide them in the form of a matrix for research implementation.

The required tools of research are provided after determining the main components of research and also the reliability and validity of data collection tools are determined through pilot study of questionnaire with experimental group of managers and professors.

In the last phase, the collected data is analyzed through the research tools including the interview and questionnaire and by statistical software, and finally the overall conclusion of pioneer university model is provided in the form of a pioneer university model after explaining and understanding the research findings.

The statistical population of this study consists of all 4288 senior, middle and operational managers and also the board members working in university branches with the comprehensive grades in District 8 of Islamic Azad University; and the sample size is obtained equal to 344 by relative stratified sampling method and Cochran formula.

The questionnaire and matrix components are utilized to collect data. After documentary investigation of theoretical models through models in theoretical basis of research, the matrix of research components is utilized to be studies in expert group and determine the main research components.

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RESULTS AND DISCUSSION

Result

Main question: Which components do affect the creation of a pioneer university?

After determining the primary factors based on the research literature, a list of effective factors in creation of pioneer university is given to specialists and experts at the Department of Educational Sciences in order to select the effective factors for determining and designing the pioneer university model and provide in the form of a matrix for conducting the research.

The principal component analysis (PC) is utilized to respond to this question "What are the main components for creation of a pioneer university?" The varimax rotation method with the minimum load factor of 0.40 is utilized to identify the factors which might constitute the thirty seven sub-components and also its simple structure.

The calculations indicate that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy is equal to 0.71 and the significance level of Bartlett's Test of Sphericity is less than 0.0001. Therefore, it can be concluded based on both criteria that the implementation of factor analysis will be justified based on the obtained correlation matrix.

Table 1: Eigenvalue, the percentage of explained variance, the cumulative percentage, and the validity of factors

Factor	Eigenvalue	Variance percentage	Cumulative percentage
1	9.184	24.823	24.823
2	3.847	10.396	35.219
3	2.828	7.644	42.863
4	2.181	5.895	48.875
5	2.096	5.666	54.424
6	1.823	4.927	59.351
7	1.561	4.218	63.569

To determine what are the main components for creation of pioneer universities and based on the three above-mentioned indices, 7 factors are extracted from the set of questions and they explain index 63.569% of the total variance. The first factor with Eigenvalue of 9.184 explains 24.823% of total variance, the second factor with Eigenvalue of 3.847% explains 10.396% of the total variance of all variables, and the seventh factor with Eigenvalue of 1.561 explains 4.218% of the total variance of variables. These values are presented in the table above.

The Varimax rotation method is utilized with the minimum factor loading of 0.40 in order to identify the factors which may create the infrastructure of thirty seven sub-components and also their simple structures.

The matrix of obtained structure is shown in the table below. The rotated values are obtained after 8 replications.

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Table 2: Matrix of rotated structure for sub-components of creating the pioneer university by Varimax method

Sub-components	F1	F2	F3	F4	F5	F6	F7
1. Management and leadership style		0.677					
2. Objectives and policies		0.637					
3. Organizational structure		0.602					
4. Rules and regulations		0.528					
5. Performance evaluation		0.411					
6. Students			0.616				
7. Faculty members			0.599				
8. Employees			0.606				
9. Education, improvement and development of human resources			0.599				
10. Foreign students			0.570				
11. Exchanging and training the human resources			0.469				
12. Performance evaluation			0.538				
13. Electronic and non-electronic resources and infrastructures				0.687			
14. Science and technology parks and centers				0.645			
15. Access to databases				0.603			
16. Correlation with industry				0.563			
17. Library, laboratories, and ...				0.538			
18. Educational space					0.696		
19. Educational budget					0.666		
20. Research budget						0.720	
21. Cultural budget						0.571	
22. Construction budget					0.656		
23. Budget of student loans and scholarships					0.624		
24. Curricula content	0.630						
25. Educational courses	0.621						
26. Education quality	0.601						
27. Effectiveness of education	0.517						
28. Educational evaluation	0.485						
29. Research orientation		0.409					
30. Scientific products and knowledge recreation						0.473	
31. Conferences, festivals and journals						0.542	
32. International cooperation						0.530	
33. Evaluation of research activities						0.512	
34. Culture and value creation in the organization and society							0.574
35. Strengthening the foundations of moralization and spirituality at work (professional ethics)							0.766
36. Creating the commitment to social responsibilities and citizenship behavior							0.433

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Based on the structural matrix of factors, the set of sub-components which are jointly correlated with a component and create a component is as follows:

"Educational factors" component: It includes the sub-components of 25 to 29.

- 1) Curricula content;
- 2) Educational courses;
- 3) Education quality;
- 4) Effectiveness of education;
- 5) Educational evaluation.

Management and leadership style component: Sub-components of 1, 2, 3, 5, 6 and 30.

- 1) Management and leadership style;
- 2) Objectives and policies;
- 3) Organizational structure;
- 4) Rules and regulations;
- 5) Performance evaluation;
- 6) Research orientation.

The strategic vision has the factor loading of less than 40%, and thus it is removed. However, the research orientation in leadership and management style has the factor loading of more than 0.4, and thus it is added to this component.

Human resource component: Sub-components of 7 to 13.

- 1) Students;
- 2) Faculty members;
- 3) Employees;
- 4) Education, improvement and development of human resources;
- 5) Foreign students;
- 6) Exchanging and training the human resources;
- 7) Performance evaluation

Information and technology component: Sub-components of 14 to 18.

- 1) Electronic and non-electronic resources and infrastructures;
- 2) Science and technology parks and centers;
- 3) Access to databases;
- 4) Correlation with industry;
- 5) Library, laboratories, and...

The educational space of less than 0.4 is removed.

Budget component: Sub-components of 19, 20, 23 and 24.

- 1) Educational space;
- 2) Education budget;
- 3) Construction budget;
- 4) Budget of student loans and scholarships;

The educational space with factor loading of more than 0.4 is included in the budget component.

"Research factors" component: Sub-components of 31 to 34, 21, 22.

- 1) Scientific products and knowledge recreation;
- 2) Conferences, festivals and journals;
- 3) International cooperation;
- 4) Evaluation of research activities;
- 5) Research budget;
- 6) Cultural budget.

It should be noted that the cultural and research budget are included in the "research factors" component.

"Cultural-social factors" component: Sub-components of 35, 36 and 37.

- 1) Culture and value creation in the organization and society;
- 2) Strengthening the foundations of moralization and spirituality at work (professional ethics);

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3) Creating the commitment to social responsibilities and citizenship behavior

The one-sample t-test is utilized to determine the status of sub-components. The results are presented in the following table.

Table 3: Results of t-test for investigating the status of sub-components in creating the pioneer university

Components	Sub-components	t	Degree of freedom	Significance level	Confidence interval		
					Lower limit	Upper limit	
Management and leadership	Management and leadership style	31.70	343	0.001	0.69	0.78	
	Objectives and policies	23.14	343	0.001	0.40	0.48	
	Organizational structure	54.89	343	0.001	1.16	1.25	
	Strategic vision	74.50	343	0.001	1.24	1.31	
	Rules and regulations	35.50	343	0.001	0.98	1.10	
	Performance evaluation	63.10	343	0.001	1.39	1.48	
Human Resources	Students	66.58	343	0.001	1.19	1.26	
	Faculty members	75	343	0.001	1.39	1.46	
	Employees	66.89	343	0.001	1.36	1.44	
	Education, improvement and development of human resources	55.03	343	0.001	1.07	1.14	
	Foreign students	57.83	343	0.001	1.22	1.31	
	Exchanging and training the human resources	42.57	343	0.001	1.09	1.20	
	Performance evaluation	62.40	343	0.001	1.29	1.37	
	Electronic and non-electronic resources and infrastructures	73.66	343	0.001	1.43	1.51	
Technology and equipment	Science and technology parks and centers	68.47	343	0.001	1.42	1.51	
	Access to databases	45.03	343	0.001	1.22	1.33	
	Correlation with industry	47.08	343	0.001	1.20	1.30	
	Library, laboratories, and ...	54.55	343	0.001	1.40	1.51	
	Educational space	34.82	343	0.001	1.06	1.19	
	Educational budget	40.90	343	0.001	0.95	1.05	
	Research budget	48.84	343	0.001	0.81	0.87	
Budget	Cultural budget	36.33	343	0.001	0.57	0.64	
	Construction budget	32.70	343	0.001	0.62	0.70	
	Budget of student loans and scholarships	32.88	343	0.001	0.46	0.52	
	Educational factors	Curricula content	113.84	343	0.001	1.46	1.51
		Educational courses	61.96	343	0.001	1.31	1.39
		Education quality	73.32	343	0.001	1.43	1.51
		Effectiveness of education	81.08	343	0.001	1.48	1.56
Educational evaluation		35.09	343	0.001	0.75	0.84	
Research factors	Research orientation	66.40	343	0.001	1.16	1.23	
	Scientific products and knowledge recreation	51.57	343	0.001	0.95	1.03	

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	Conferences, festivals and journals	65.37	343	0.001	1.22	1.30
	International cooperation	49.47	343	0.001	1.09	1.18
	Evaluation of research activities	63.37	343	0.001	1.39	1.48
Cultural-social factors	Culture and value creation in organization and society	36.86	343	0.001	0.98	1.09
	Strengthening the foundations of moralization and spirituality at work (professional ethics)	30.07	343	0.001	0.84	0.96
	Creating the commitment to social responsibilities and citizenship behavior	26.38	343	0.001	0.94	1.09

According to the results of one-sample t-test and from the perspective of respondents (university principals and faculty members), all sub-components of creating the pioneer university are higher than the average.

Discussion

The components of creating the pioneer university are identified based on the results of data analysis for the first research question. These components include the leadership and management, organizational structure, human resources, infrastructure of technology and equipment, budget, educational factors, research factors, cultural and social factors as the factors affecting the creation of a pioneer university.

Management and Leadership

Like the other organizations and as the main and key factors of human resource training centers, the universities have especial culture which can have the significant effects on educating the capable, professional and entrepreneurial individuals; and this important issue depends on the available effective leadership and management at the university. Mirsepasi (1997), Homayounfar (2010), Ghasemi (2000), Payne (2000) and John & Rosser (2002) have also emphasized in their studies that the effective management and leadership is correlated with the productivity, efficiency and excellence of university.

Organizational Structure

The management mechanism is the key issue in creating the excellent structure following the pioneer university. The trust building and enhancing in the organization is one of the management mechanisms. These findings are consistent with the results of research by Donisi quoted by Davidson and Wiklund (2001).

Human Resources

The education is the best and most appropriate way of empowering the human resources. These findings are consistent with the results of research by Etzkowitz *et al.*, (2003) and Abouei-Ardakan *et al.*, (2007).

Infrastructure and Technology and Equipment

In fact, the infrastructure refers to the facilities, installations and service essential for performance of a set like the communication systems, organizations and so on. In the field of infrastructures and facilities of libraries in university branches, Bagherinejad (2013) argues that the infrastructure and facilities do not meet the standards both qualitatively and quantitatively, and they are much lower than the standards.

Budget

The lack of financial resources at universities is an international issue both at universities in developed and developing countries and is created due to the increased social demand for university entrance, raising the oil prices, numerous crises in international trade, reduced economic growth and the inability to raise the taxes. These findings are consistent with the result of research by Hasangholipour *et al.*, (2011).

Educational Factors

The education is one of the most important activities of university, and the improvement of its quality is one of the necessities to create a pioneer university. Due to the lack or shortage of university education

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integration with the community needs, the students have no proper understanding of social issues in the field of labor, employment and different industries, and thus they are unable to utilize their capacities in the field of development. These results are consistent with the findings of research by Etzkowitz (2003) and Arefi (2005).

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The organizations create the value when the rate of return on investment is greater than the costs (Khorasani, 2008). The university research is also a type of investment; and the value will not be created in the case that their return is less than the cost of their capital.

Social and Cultural Factors

The flexible culture is among the characteristics of developed organizations. The norms and beliefs, by which the available signs of environment can be identified and interpreted and the appropriate reaction can be shown, are confirmed in this culture (Ghanati, 2010).

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