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Identifying the effective factors on the transition to the third-generation university: A qualitative study

Mohammadreza Amiresmaili, Hossein Saberi, Farshid Barkhordari

Abstract:

BACKGROUND: Iranian universities optimistically can be regarded as second-generation research-centered universities which train people who can only fill the predefined occupational gaps. These universities are doing very little to become third-generation universities. It seems that medical science universities have a huge capacity to create and expand entrepreneurship in health care because of their diverse activities in health services. The present study aimed to investigate the effective factors affecting the Iranian medical universities transition to third-generation universities.

METHODS: The present study is a qualitative study which was carried out in Kerman University of Medical Sciences. The study population was the faculty members of Kerman University of Medical Sciences who had been selected by purposeful sampling method. For this purpose, 13 faculty members of Kerman University of Medical Sciences who were interested in the topic were interviewed. To collect data, a number of general questions were asked from the participants to clarify specific topics. The interviews lasted between 20 and 45 min. The descriptive phenomenology method was used for data analysis based on the Colaizzi's seven steps.

RESULTS: In the present study, five main themes include; reforming the bureaucracy, paying attention to the empowerment of university personnel, improving the status of graduates, reviewing the status of education and research, and connecting with the industry and making a profit were identified.

CONCLUSION: We can use strategies such as reduction of bureaucracy, privatization, reduction of management pyramid, culture building, creation of appropriate reward system, and taking a role model from successful people.

Keywords:

Entrepreneurial university, third-generation university, university of medical sciences

Department of
Management, Policy
and Health Economics,
School of Management
and Medical Information,
Kerman University
of Medical Sciences,
Kerman, Iran

Address for correspondence:

Mr. Farshid Barkhordari,
Department of
Management, Policy
and Health Economics,
School of Management
and Medical Information,
Kerman University
of Medical Sciences,
Kerman, Iran.
E-mail: farbar90@gmail.
com

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Introduction

Economic, cultural, social, and political changes at different time periods have caused universities to take some steps toward responding to emerging needs.^[1] In this regard, first-generation universities emerged at first as training-centered universities, and their purpose was to train a specialized workforce. Subsequently, second-generation universities came to be known as research-centered universities, and their purpose was to conduct

research and produce science. Then, third-generation universities emerged as entrepreneurial universities, whose goal was to establish a link with the industry and educate qualified workforce and entrepreneurs.^[2] Unfortunately, in Iran, we can even optimistically say that universities are second-generation research-centered universities,^[3] and train people who can only fill the predefined occupational gaps.^[4] Our universities are doing very little to become third-generation universities.^[3] These days, considering the economic, cultural, social, and political changes, there is a need for universities to teach and promote the creativity and spirit of entrepreneurship

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and innovation to talented students and faculty members.^[5] In addition, the conversion of universities to an entrepreneurial university is necessary for survival and development in the future. If a university is an entrepreneur, scientific research ends to the production of a new service, activity or product, and if this is not the case, scientific research is rarely transformed into innovation and is often stored in libraries.^[6] Therefore, universities should design a model for their structure, performance, processes and infrastructure, taking into account the environmental conditions, by conducting research and applying internal and external studies. It seems that medical science universities have a huge capacity to create and expand entrepreneurship in health-care because of their diverse activities in health services. However, unfortunately, most of these universities suffer from the lack of specific organizational structure for designing and implementing educational, research, and promotional programs to increase motivation and awareness on entrepreneurial activities.^[7,8] The issue of entrepreneurship and entrepreneur universities at the present time is one of the important issues of the country's management, which has drawn attention to entrepreneurship in the health sector in recent years.^[9] On the other hand, one of the pivotal points in the development of medical education is paying attention to the third-generation university and the entrepreneurship. The universities of medical sciences across the country have a mission to move in this direction. Therefore, this research was carried out to identify factors that affect the transition to third-generation University in Kerman University of Medical Sciences.

Materials and Methods

Design

The present study is cross-sectional in terms of nature, qualitative (phenomenological approach) in terms of study method, and practical in terms of purpose, which was carried out in Kerman University of Medical Sciences.

Participants, procedures, and sampling

The study population was the faculty members of Kerman University of Medical Sciences who were selected by expert sampling method as a type of purposive sampling. The criteria for entering the study were having knowledge about the subject (by checking their recent publications). Sampling continued until data saturation. For this purpose, 13 faculty members of Kerman University of Medical Sciences who were knowledgeable in the topic were interviewed. To collect data, a number of general questions were asked from the participants to clarify specific topics that were designed by reviewing scientific literature^[3-5,10] related

to the study subject. In order to monitor the validity of the issues, the questions were presented to the faculty members in each session, and according to their views and opinions, necessary changes were made. The interviews were conducted in the time and place agreed on by the participants. The interviews lasted between 20 and 45 min.

Ethical considerations

Ensure the participants in the research were kept confidential. Sound recording was done after getting verbal consent of the participants. Participants were interested in the research, and their cooperation was free. This study was conducted as an MS thesis in health care management which was approved by the vice-chancellor of Kerman University of Medical Sciences in educational affairs.

Data analysis

The descriptive phenomenology method was used for data analysis based on the Colaizzi's seven steps including (1) familiarization, (2) identifying significant statements, (3) formulating meanings, (4) clustering themes, (5) developing an exhaustive description, (6) producing the fundamental structure, and (7) seeking verification of the fundamental structure.^[11] For this purpose, the content of the interview was immediately implemented after each interview to be used as a guide in later stages. The four criteria of Guba and Lincoln, including transferability, credibility, dependability, and confirmability were used to ensure the validity, accuracy, and reliability of the qualitative data. Transferability indicates whether the results are applicable to other groups or not. In this regard, we tried to get information from the selection of participants who were expert in this field and had adequate knowledge. To ensure the reliability of the data, sampling was carried out among people with a wide range of expertise and specialties. Dependability was ensured by giving the codes derived from the interviews to the participants to be approved by them after the corrections have been made. For this purpose, the study process was provided to the people who were expert in qualitative research, and they evaluated the results of the study after reviewing the study process.^[12] Considering the fact that, in the present study the three previous criteria for assessing the validity and reliability of qualitative research have been observed, it could be concluded that confirmability of the results has automatically been ensured. Data analysis was performed manually, and no software was used.

Results

In general, nine men and four women participated in this study. The average age of the participants was 45. Effective factors for transition to a third-generation

university can be presented in different groups. However, in the present study, these factors were classified into five main Themes and 14 subthemes which are presented in Table 1.

Theme 1: Bureaucracy reform

Bureaucracy is a problem that our system suffers from. In some ways, it may go back to a distant past of the administrative system of our country that was adapted from the administrative systems of several countries in the world. This system has been imported from foreign countries and is not native. Research for development in the university should move from a rigid bureaucracy to a dynamic bureaucracy. One of the major issues in this regard is the reduction of administrative regulations. Reducing rigid bureaucracy is imperative for making a link between the industry and university. Reduction of restrictive bureaucracies is one of the secrets of success in the university, and the university must, instead of engaging itself in paperwork, create an entrepreneurial spirit among people to achieve significant advances. In this regard, one of the participants stated that: *“Our administrative system is a mixture of different administrative systems, and some of these so-called administrative problems are due to the administrative laws and regulations. Our first problem, rather than excessive bureaucracy, is a defective bureaucracy.”*

Privatization

Privatization means going away from governmental investment and creating private investment in the university, which takes away the government’s authority from the university. Basically, relying on the state reduces the entrepreneurial spirit. In this regard, one of the participants stated that: *“Our private sector is weakened and plays a little role, the government’s authority over the university must be reduced and the attractiveness of the private sector should be increased, something that happens*

in developed countries. Our private sector does not have its real place, and even somewhere that is considered private is in fact half governmental and is still affiliated with the state organizations.”

Culture building

All of us must respect the law, and should not act above the law. People should not achieve their goal illegally. The development of culture, creativity and initiative is the product of social system and is influenced by family and the school, where the students’ motivation to take on productive roles increases. In addition to the growth and coherence of personality, we should also pay attention to individual autonomy, attitudes toward work in the society, hard working, perseverance, and punctuality.

Reduction of management pyramid

Managerial levels should be properly defined. The management pyramid must be properly mapped. In many organizations including universities, there is a large pyramid that should be lowered. In this regard, one of the participants stated that: *“From the first to the last level, there are several intermediaries that each one slows down the work. We need a deep organizational engineering.”*

Creation of information management system

Today, various tools and software are used to collect and analyze information from various information sources to achieve goals such as reporting, monitoring organization activities and providing information for decision-making. By providing analysis to the organization, these software and tools help to understand the data, help users to make their decisions based on the fact, and help to obtain a comprehensive image from different parts of the university. We can also provide analysis and information about the organization’s future activities based on current or past organizational data. In this regard, one of the participants stated that: *“Today electronic systems are used to increase the managers’ monitoring of their subgroups. The use of software reduces the levels of management, and while there is an understanding, the need for worker or expert is reduced. In the past, if the manager was not in the organization, you could not get your paper signed for a week, but now because of the automated system, the manager can sign your paper even if he is overseas.”*

Theme 2: paying attention to the empowerment of university personnel

The more managers invest in the empowerment of university personnel; the more success and efficiency are increased. An empowered and capable workforce creates a capable university. Empowering individuals is the most important effort that can be made to create entrepreneur and innovative university. In this regard, one of the participants stated that: *“Many officials should know the creative people. The internal motivations and*

Table 1: Categories and subcategories explaining effective factors for transition to third-generation university

Themes	Subthemes
Bureaucracy reform	Privatization, culture building, reduction of management pyramid, and creation of information management system
University employees empowerment	Creating a suitable reward system, taking role model from successful people, change of manner, and increasing extracurricular activities
Improving graduates	Creating an active committee and increasing continues education courses
Education and research status improvement	Presenting the educational modules in the form of entrepreneurship, changing the content of modules, and increasing workshops and informal courses
Relation with industry	Development of knowledge-based economic and increasing research and development

incentives should be strengthened in people. We should make the students to think that creativity comes from them. They must now that, this knowledge that they are learning can be used after their graduation or during study. There are many examples of such people who have made a discovery during their study."

Creating a suitable reward system

Reward is considered as one of the most important means of encouragement. The design of a reward system and appropriate methods of encouragement and punishment is important. The reward system is a set of internal and external rewards that are given to individuals for their remarkable work based on a reasonable and fair standard. These rewards in turn, encourage people to improve their performance, which ultimately promote motivation and commitment and reduce inefficiency. In this regard, one of the participants stated that: *"People are evaluated by and receive feedback from their manager. Even the manager will be selected in the same way, so people try to keep their performance within the defined standards and even a bit higher than the defined standards."*

Taking role model from successful people

Taking role model from successful people is one of the fastest ways to accelerate success and solve problems. Successful people have the attributes that can be combined with individuals' behavior with training and practice. As every human being can copy successful people and succeed, he can copy failure in the same way and fail. In this regard, one of the participants stated that: *"Entrepreneurship is one of the ways that can motivate students. Students sometimes look at their tutors. They see how they have got their job position. When the teacher is a good role model in different areas, he/she can affect students."*

Change of manner

Universities have to change direction towards entrepreneurship. We need skills to move in the direction of entrepreneurship, and students must be encouraged to continue to work and become more interested in industrialized activities. Applied training should find its rightful place in the society. Instead of giving degree to people, we should teach students necessary skills. For this purpose, some changes should be made in the universities. Students spend their time and money and after completing their degree, they get jobs that are unrelated to their degree. Anywhere that young people have become active they have caused fundamental changes in their society. In this regard, one of the participants stated that: *"People need to change and believe this is the way. It's a bit hard. We need to change the attitude of student towards their own discipline so that, they can see positive aspects of their work."*

Increasing extracurricular activities

This action is necessary to put in place entrepreneurial efforts inside and outside the universities. Developing student skills, providing students' visit, holding workshops in cooperation with the industry, organizing a festival, etc., are among other measures for perusing students into entrepreneurial activities. Necessary plans should be developed to encourage students move towards entrepreneurship. The planning to create entrepreneurship advocacy courses and student constructive ideas should be welcomed. In this regard, one of the participants stated that: *"Students' visits refer to the provision of short-term courses for students and visiting industrial and successful countries, even if it's not possible to see them directly. We can also use Skype's virtual workshops and things like that, which are very influential."*

Theme 3: Improving the status of graduates

Graduates should be considered the main capital of the university. Universities are more like a graduation factory that produce unemployed graduates annually that are added to the unemployed population in the society. The most important ways to improve the status of graduates are to hold postgraduate courses, make structural changes in the content of education and modify curriculum, establish close links between student's associations and knowledge-based companies in the labor market, and identify the capabilities and needs of graduates in the labor market and empower them, which play a key role in increasing access to job opportunities. In this regard, one of the participants stated that: *"We should not leave the students on their own after graduation. We have a system in our administration system that monitors the graduates. University graduates, as the product of university, experience other scientific and industrial fields, and these experiences can be used as feedback to improve the university's performance. University graduates can increase the level of university through their material and spiritual support."*

Creating an active committee

The purpose of association is to create the necessary platforms and provide facilities for expanding the link between graduates and universities. In order to enrich the content, we must benefit from the constructive and useful suggestions of the graduates. By presenting comments and suggestions, we can use the abilities and experiences of people to enhance and improve the position of university. In this regard, one participant stated that: *"Interaction of graduates with each other can help them to use each other's experiences, and thus improve their own status. We must be determined to activate graduates' associations."*

Creating/increasing continues education courses

Continuing education programs are generally referred to as postgraduation activities that assist individuals in

fulfilling their responsibilities. Continuing education programs seem to be essential in health promotion. In this regard, one of the participants stated that: "There are a number of specialist graduates who require continuous education and training, and are called certified graduates, including general practitioners, pharmacists, dentists, midwives, and others. They are obliged to attend regular and continuous educational courses in order to be able to undertake their professional activities. This is a compulsory system that keeps people engaged in these training courses and makes them unwittingly compelled to do so. There are other students who do not require such courses as they have different disciplines. *We should create a system that monitor and attract students who have creativity and initiative.*"

Theme 4: Reviewing the status of education and research

Quality in higher education is one of the approaches that need to be taken into consideration by universities. We need to identify the jobs, programs and the needs of industry and provide appropriate training for them. It is essential to prevent the production of nonscientific and low quality graduates in order to maintain the status of science and its importance in the future economy of the country. Improving university education is critical in facing challenges and problems. Educational programs need to be tailored to meet the needs and expectations of the society and students, and emphasis should be placed on the education quality improvement indicators, rather than quantitative aspects. In this regard, one of the participants stated that: "It should be noted that, many people are not in the entrepreneurship atmosphere, and just want to traditionally pass their courses. We have to move towards the entrepreneurship and provide related programs for faculty members. The next generation faculty members should talk about entrepreneurship alongside research and education."

Presenting the educational modules in the form of entrepreneurship

In traditional methods, most of the time teaching was limited to the professors' lecture and listening of the students. In new methods, the focus of activities should be shifted from the professor to the student, and the responsibility for organizing what must be learned should be given to the student. In this way, learners respond effectively to questions and will be completely engaged in what they learn. In general, having interactive skills, effective communication ability, regular program and many other features are among factors that influence the process of teaching. Each one of the educational methods alone has some advantages and disadvantages. Therefore, it is often recommended to use a set of teaching and training methods to make teaching more efficient. In this regard, one of the participants stated that: "We must work on the students' motivation. We should have plan for students

as soon as they enter the university. In the university, faculty members only want to teach their unit, do their research, publish an article, and increase their H-index. Some teachers however are really good and motivate students in the classroom, and why? Because they have learned about these issues, which means, they know the foundations of entrepreneurship. They at least know what the job position is and what the management is. We need to develop this capability in the teachers."

Changing the content of modules

It seems that more attention should be paid to the content and the hidden part of the curriculum rather than module title. In the universities of developed countries, the modules are not very different from our country, but the content of the courses is shaped according to the needs of society and practical work. Teaching a subject is not the same in any situation. Learning different modules requires different activities, which means, teaching goals are different. There is currently no logical connection between educational system and labor market of the country, and therefore it is necessary to establish coordination between the higher education system and labor market to avoid the waste of resources. In this regard, one of the participants stated that: "We need to go beyond the curriculum and pay special attention to hidden structure of curriculum. When you look at the curriculum all across the world, they don't differ from each other, but they have paid more attention to the hidden content of educational modules. However, we should also pay attention to new teaching methods that the teachers use in the developed countries."

Increasing workshops, and informal courses

There are programs that need to be taught as workgroup or practical skills. These programs include scientific updates, exchange of experiences and information retrieval for problem solving, question and answer sessions with experts and experienced people, in which the results of research are presented, and meetings and gatherings to discuss a specific scientific field, in which experts are required to express their views on important issues. Educational programs that do not require the physical presence at the place of training, and are provided by the students through a series of activities during the course or program in the form of a web-based system or the use of electronic technologies are among such programs. In this regard, one of the participants stated that: "Workshops will be held informally for students in this field. Confrontation is very important. Students must face the entrepreneurs and those who have been able to make fortune in this way. They should be shown to the student."

Theme 5: Connecting with the industry and making profit

Currently, there is no proper link between university and industry. Today there is enough capacity at

universities and platform for research is provided. Lack of communication with the industry is a serious problem that requires more effort. Industry has somehow been left behind the technology advances, and today unfortunately there is a wide gap between industry and the university, which must be filled by the greater interaction between industries and universities. The university should not consider itself a sole custodian of education. The current policy of most universities is education and research, and there are no plans to make connection with the industry. However, given the society's need, the university should take steps to communicate with the industry. In this regard, one of the participants stated that: *"The most important issue is the mutual trust between the parties, which means that the university must come to the conclusion that there is no other way but to link with the industry in order to apply scientific products and generate incomes. On the other hand, the industry must understand that, it has no any other way but to connect with the university in order to produce technology, be upgraded and make progress. However, this public discourse has now been shifted toward entrepreneurship, but the pleasure of generating income in this way is not yet seen in the society."*

Development of knowledge-based economic

Knowledge-based economic is a method in which knowledge is used to create value added. This knowledge is used by university in various economic fields to create value added. The combination of science and practice, and the university and industry, despite their contradictory characteristics, is one of the vital principles of the country's economic development. The university must apply methods to, in addition to maintaining and improving the quality of education and research, solve the problems of society and generate wealth from knowledge and technology. Meanwhile, capacity building and providing the necessary platforms for the formation of knowledge-based companies by professors, graduates, and students is an important topic that should be pursued. It should be noted that the commercialization of technology and the acquisition of value from research findings and technology should be one of the important strategies used to provide funding for universities. In this regard, one of the participants stated that: *"The only way to increase the income of the university is through the knowledge-based companies that are affiliated to the university, and the strengthening of them by the university. This means that, if the professors or students get support from the university and develop their idea towards the establishment of knowledge-based companies, a percentage of their profit will be given to the university based on their agreement."*

Increasing research and development

The development of industry according to the needs of society is considered as the link between the industry

and the university. The role of research and development centers to fill the gap between the university and industry is essential in the development of country. One of the important functions of research and development units is to analyze the existing problems and make suggestions to the universities. The lack of applied research in universities and paying no attention to the domestic industry, indirectly make education to be far from the spirit of industry-university communication, so students who are trained and enter the industry, are not familiar with the industry. On the other hand, the industry has not yet found confidence that they can solve their problems through research and development with the help of academic specialists, because they have not received a good response in many cases. In this regard, one of the participants stated: *"The industry needs to believe that, it can use joint research and development units with the university to respond to its needs. This way, direct profit will be made for the university."*

Discussion

This study was an overview of the factors affecting the transition to the third-generation university. Among these factors, most participants focused on the connection with industry. In regard to the reforming the bureaucracy, the existing administration system and the length of work process have caused dissatisfaction among students, staff, and managers. Basically, the bureaucracy system has become a target itself rather than being used for a target, resulting in an annual increase in costs. Accordingly, the student must travel between the various rooms of the university even for a simple task such as getting a signature or delivering a sheet. However, if we create a system, in which the students visit one or two employees to get their administrative affairs done, and those employees would be able to do all the works, this problem will be resolved.^[13]

Individuals can improve the performance of university by relying on their knowledge and skills. On the other hand, the abilities of the individual should be related to the desired work. If the individual has a great ability (which mean, in addition to the necessary conditions, have required abilities), he/she will have a great performance. The type of organizational position or work determines the conditions that a person needs to have in terms of intelligence or physical ability. Hence, if people do not have the necessary abilities, they will not succeed. On the other hand, when a person is not suitable for a job that is assigned to him, for instance his abilities are more than what is needed for the job or work, although the person's performance would be excellent, but the university will face inefficiency and satisfaction will decrease. Accordingly, managers should consider appropriate measures to utilize the physical and

mental abilities, skills, and knowledge of individuals and motivate them, and provide them with suitable work opportunities, so we can witness the empowerment of university's workforce.^[14]

The view of most countries in the world toward entrepreneurship and its promotion in recent decades has given rise to a wave of developmental policies and entrepreneurship education. In Iran, the Code of Entrepreneurship Development was designed in 2001 to create the culture and make changes in the models of education and research, which was implemented in several universities in the same year. Now, more attention should be paid to the role of higher education in creating entrepreneurial culture and training of entrepreneurial graduates.^[5]

Higher education is an important part of education that has a wide range of influence in other institutions and economic, social, cultural, and political sectors of the society. Nowadays, one of the fundamental roots of academic weaknesses in universities is the certification spirit, as the country's educational system mainly supplies students to the university, that although well-studied, have not developed a well-trained entrepreneurship spirit. One of the problems of universities is to change such attitudes. The higher education system has always faced problems in its missions and tasks, and continuation of those problems and challenges reduces the scientific and research abilities of this important system, which ultimately leads to a sharp drop in the quality of teaching and research in the universities.^[15]

The existence of a close link between industry and university is one of the most essential relations of any society that will lead to the development of both institutions as well as the society. University's relationship with industry has a long history, especially in developed countries. The experience that successful and developed countries have gained from such relationship is very important. It will be very informative and useful for those societies that are willing and interested in establishing and improving the relationship between industry and university to review and study the experiences gained by developed countries. In addition, in the development plan of the country for the next 4 years, the relationship between university and industry has been emphasized on with the aim of developing technology. Moving towards applied academic research, creating joint research centers between university and industry, student apprenticeships in the industry and the commercialization of academic research are some of the points that the university needs to address to improve their relationship with the industry.^[16]

Limitation

Since the concept of third generation universities is rather new in Iran, we faced some problems identifying knowledgeable participants. Besides some of the concepts of third-generation universities are unfamiliar for our dominant public universities. This study could serve as an exploratory study to illuminate the research on this topic. One should take into account the mentioned limitations when interpreting our results.

Conclusion

At the present time, considering that economic, cultural, social, and political conditions have changed, we need a system in universities that educates and promotes entrepreneurial spirit. In addition, the conversion of universities to entrepreneurial universities is necessary for survival and development in the future. Therefore, universities should conduct research and use national and international studies to design a model for their structure, performance, processes, and infrastructure which are proportionate with the existing conditions. According to the results of this research, we can use strategies such as reduction of bureaucracy, privatization, reduction of management pyramid, culture building, creation of appropriate reward system, taking role model from successful people, increasing supplementary and extracurricular activities, creating active students and graduate associations, increasing and designing continuous education courses, changing teaching methods and educational content, increasing workshops and informal education, developing knowledge-based economics, and increasing research and development, to move toward entrepreneur universities.

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Conflicts of interest

There are no conflicts of interest.

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