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The viewpoints of medical sciences wealth creators regarding the wealth creation strategies and path in medical sciences universities

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Abstract:

BACKGROUND: In the recent years, the wealth creation of educational institutions has attracted an enormous attention in different countries. Exploring experiences of these institutes help to improve the wealth creation of universities. In this regard, this study was an attempt to explain the viewpoints of the wealth creators of medical sciences regarding wealth creation strategies and define the general path of wealth creation in medical sciences universities.

MATERIALS AND METHODS: This qualitative study was conducted at Iran University of Medical Sciences, Tehran, Iran, in 2021. Participants were the experienced knowledgeable wealth creation experts. Fourteen semi-structured interviews were conducted to reach data saturation. Interview guided questions were about strategies and paths of wealth creation followed by probing questions. Data were analyzed using conventional qualitative content analysis.

RESULTS: Data analysis showed that the most important strategies were related to nine extracted categories of “the productions”, “contracts and relations”, revising, predicting and foresight” -, “education”, “research”, “healthcare services”, “ interdisciplinary fields between Information Technology (IT) and health-care”, “ saving and maintenance”, and “altering the procedure of the wealth accelerator centers.” In general, wealth creation path in medical sciences includes six main categories.

CONCLUSIONS: The result of this study provide an opportunity for educational policy-makers and authorities to improve wealth creation in medical universities. Especially, accentuated by the COVID-19 pandemic, to consider the interdisciplinary fields between IT and health-care and integrating technology to the various categories of medical sciences are absolute needs.

Keywords:

Economic status, economics, education, health care, medical, medicine, universities

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Introduction

Nowadays, universities are transforming, and the first, second, third, and even the fourth and fifth academic generation of universities are focus of attention. The first-generation of universities are recognized as knowledge-based, and the second generation as the research-based.^[1] The third-generation concept is proposed by Wissema in 2009.^[2] Accordingly, a

university is the creator of wealth and a center for production, transmission, and implementation of the innovations while continuing the conventional performance of regular universities.^[1] This concept emphasized the fundamental role of universities in economic competition and the sustainability of economic growth.^[3]

Thus, the universities are greatly required to make changes in their content, structure, governance, and strategy to establish

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relations and increase mutual interactions. More, to receive or create wealth, universities are supposed to use their specialties and various characteristics. Accordingly, different researches are conducted to examine the structure of the third-generation universities; for example, Ghorbani *et al.* recognized two macro and micro structural requirements for these universities.^[2] Simha reports that these universities are required to obtain financial resources to maintain their eminence in research^[4]. The importance of university financial resources and their key role in promotion of quality of education were also emphasized in some of studies. As an example, Pyke asserts that inadequate financial resources may lead to overcrowded classrooms; and, decreased quality of education.^[4]

In addition, according the academic or nonacademic studies the generation universities mostly had a general approach regarding wealth creation. Also, various qualitative and quantitative factors were observed to create wealth, which are sometimes difficult to be separated in practice.^[5] In other words, after merging the findings, three different approaches of wealth creation are detected: (1) direct, (2) indirect, and (3) integrated (combined). In the direct approach, the strategies directly bring about wealth creation. In the indirect approach, the strategies will have the empowerment and infrastructure facets, facilitating wealth creation. Seeking and creating talented employees, utilizing self-directed and interactive learning strategies, as well as internships in the industry are examples in these strategies.^[6] In the integrated (combined) approach, the strategies include both empowerment and infrastructure facets, as well as wealth creation, independently.

Considering the structure, responsibilities, and specific characteristics of the new generation of universities as accountable institution, medical sciences universities are no exception. Furthermore, paying attention to wealth creation under the COVID-19 pandemic has a paramount importance. Because medical sciences universities have been affected by it similar to or even more than other institutions; on the one hand, this disease has imposed considerable financial costs on the communities; and, on the other hand, incomes and deployment of resources has decreased drastically.^[7]

What distinguishes the purpose of the current study is its particular emphasis on determining the the wealth-creation strategies and path in medical sciences university according to the experiences of individuals who have already passed this path and sometimes endured hardships and failures to achieve success. In this study, the path refers to the steps that they passed. Sharing these kinds of views and experiences, especially

those related to the COVID-19 pandemic, provided an opportunity for all beneficiaries to learn from experiences of each other.

Hence, the aim of this study was to explain the viewpoints of the medical sciences wealth creators regarding wealth creation strategies and wealth creation general path on the basis of their experiences.

Materials and Methods

Study design and setting

For the purposes of this study, conventional qualitative content analysis, as a flexible method was used to collect and analyze the data.^[8] Data collection method was semi-structured interviews.

After securing the permission of the ethics committee of Iran University of Medical Sciences (IR.IUMS.REC.1398.332) and informed consent of the study participants, the study was conducted from July to December 2021.

Study participants and sampling

The experts were selected by purposive sampling continued by consecutive sampling, using the snowball method. Besides, this study considered maximum variation in terms of field of study, area of expertise, work experience and location of the workplace of the participants. The inclusion criteria were to be expert in wealth creation, being well- experienced, and acquainted with the key elements of wealth creation and being a business owners in medical sciences.

Data collection tool and technique

Semi-structured interviews were conducted to meet the purpose of the study. Because of the COVID-19 pandemic and in order to follow the health protocols for COVID-19 prevention, the interviews were conducted online through Skype and WhatsApp (video call) with previous arrangements and permissions. The average time of interviews was 30to40 minutes. An information sheet was sent to the participants through e-mail or WhatsApp before the interviews started; and, their informed consent was secured. The interview questions were designed according to the study purpose, the current literature, and following knowledgeable expert consultant recommendations. The participants' questions and their concerns and ambiguities were responded thoroughly. The interviews and memos were recorded simultaneously. Finally, the interviews were transcribed verbatim and checked by each participant (member -check). Then, the confirmed interviews were analyzed. The interview continued till data saturation, when no new data emerged. [Table 1].

Data analysis

Data analysis was performed by the conventional qualitative content analysis proposed by Hsieh and Shannon.^[9] At the end of each interview, it was transcribed verbatim on the Word software (A.Z). Afterwards, to extract each interview general and major concepts, the interview text was read and re-read by two independent researchers (Z.S & A.Z). Then, meaning units and initial codes were extracted and duplicate codes were deleted and the final codes were imported into an Excel sheet. The codes with similar concepts were categorized in a more general classification, and the sub-categories were formed. Ultimately, after classification of similar sub-categories with each other, categories emerged (Z.S & A.Z). The emerged codes, sub-categories and categories and the original transcripts were checked by the third researcher (Sh.B) for validation and confirmation of the consistency of the findings or resolving inconsistencies, if there was any.

The Lincoln and Guba criteria were used to ensure the data credibility, confirmability, dependability and transferability of the results. In this regard, for the purposes of this study, the following points were considered:

- Allocating adequate time to conduct the interviews.
- Recording the data with ultimate accuracy.
- Gathering and analyzing the data simultaneously.
- Confirming the transcripts and extracted codes by the study participants (Member Check).
- Confirming the transcripts and extracted codes by an expert colleague (Peer Check).
- Using appropriate sampling method (maximum variation).

Results

The results are presented in three subheadings which are: Demographic characteristics, General wealth creation strategies and Wealth-creation path in medical sciences universities.

Demographic characteristics

A total number of 14 interviews (9 male and 5 female participants) were conducted. All of the study participants had wealth creation experience. Seven individuals had management experience. While others, had work experience in research, consultation, industrial cooperation, knowledge-based companies, and teaching at national and international levels. The study participants were from Iran, Shahid Beheshti, Shiraz, Kerman, Mazandaran, and Esfarayen faculties of Medical Sciences, and the Iran Vice-Presidency for Science and Technology, and a majority of them (n = 11) were faculty members (Professor: 1, Associate professor: 1, Assistant professor: 8, Instructor: 1) [Table 2].

Table 1: Interview's and probing questions

The interview's questions were as follows:

What are the strategies of wealth creation in Medical Sciences Universities?

Given the condition caused by COVID-19, in medical sciences universities which of the wealth creation strategies seems operational?

To the best of your knowledge and experiences, how is the wealth creation path in Medical Sciences Universities?

The following probing questions were asked:

What solutions have worked for you?

What route have you taken?

Please give an example

Please support/ provide evidence for what you said.

Table 2: Demographic characteristics of the study's participants

Participant number	Gender	Academic status	Are of expertise
P1	Female	Faculty member	Nanotechnology
P2	Male	Faculty member	Professional management of business
P3	Male	Nonfaculty member	Social medicine specialist
P4	Male	Faculty member	Medical education
P5	Male	Faculty member	Pharmacognosy specialist
P6	Female	Faculty member	Medical education
P7	Male	Nonfaculty member	Higher education
P8	Male	Faculty member	Education management
P9	Female	Nonfaculty member	Financial management
P10	Female	Faculty member	Medical education
P11	Male	Faculty member	Health economy
P12	Male	Faculty member	Nuclear medicine specialist
P13	Female	Faculty member	Health information management and technology
P14	Male	Faculty member	Health information management and technology

The wealth creation general strategies

The interview results indicated that there are various wealth creation strategies in medical sciences universities. In this regard, nine categories and a number of sub-categories were emerged [Table 3].

Sample excerpts from the interviews:

- A. "For example, in the realm of mental issues, the psychiatrists or most of the medical sciences universities, could focus on mental health. The factories and companies imposing heavier workloads can sign contracts with universities on training and giving consultation to their members. Therefore, one way to create wealth is confirmation of the contracts with the industries and different groups for educational and consultation services."
- B. "The area currently being discussed in the medical sciences university that could be more elaborated is the technology area; for example, various technologies in different medical fields and equipment, particularly in Health Information

Table 3: The wealth creation general strategies under the COVID-19 condition

Categories	Sub-Categories
Productions	Manufacturing various drugs and biotechnology
	Manufacturing medical equipment
	Manufacturing vaccine
	Manufacturing the required hygienic tools for people
	Manufacturing medicinal plants
Contracts and Relationships	Relationship between universities and state/city development planning councils
	Communication with the agriculture faculty for medicinal cultivations and pesticides
	Concluding contract with banks to finance
	Sharing the universities' clinical and nonclinical spaces in a contract; such as laboratory, library, and university conference hall spaces
	Concluding contract with industries and different organizations for the educational and consultation services
	Concluding contract with the graduates to provide services under the university contract
	Research contracts
	Interdisciplinary relationship
	Communication with the entrepreneur and prosperous universities
	Inviting the risk-taking investors
Review, forecast, and forethought	Reorganizing the way of providing health-care services of the cities and rural
	Revising the strategic and operational plans given the circumstances
	Predicting the required products of the country and forethought
	Predicting e global turnover in the realm of pharmaceuticals over the course of subsequent few years
Education	Manufacturing educational applications for patients (such as diabetics)
	Digitalizing education and the distance education
	Online training for the patients
	Distance education for the foreign students
	Conducting online courses to teach productivity, creativity, and entrepreneurship
	Conducting various online workshops
	Establishing international and virtual affairs departments for a university
	Conducting online single-cycle courses
	Preparing educational contents for different organizations
	Designing online general educational courses
Research	Conducting online meetings in hospital and participating the innovative students to solve hospital-related issues
	Extracting needs based on diseases for each context
	Implementing applied plans and theses based on the demands

Contd...

Table 3: Contd...

Categories	Sub-Categories
Research	Considering university as the R and D sector of the various companies
	Concentrating on the interdisciplinary plans
	Implementing commercial researches in medicine
	Conducting the combinatorial chemistry projects
	Conducting the human being genome projects
Health care services	Conducting the medical technology projects
	Conducting the nutritional projects
	Utilizing the small commercial projects
	Recruiting auxiliary nurses in the home-care sector
	Dispatching the students and professors to the neighboring (surrounding) nations in order to clinical services
Interdisciplinary fields between IT and health-care	Providing mental health-care services for the factories and other organizations
	Making use of the technology in treatment and drug manufacturing
	Conducting tele health and "tele" fields (telecare, telemedicine, ...)
	Distributing digital health technologies
	Therapeutic smartening up and using artificial intelligence
Savings and maintenance	Sharing health information technology such as the systems, applications, and electronic health profile
	Using ICT in home-care and self-care services
	Employing financial specialists for financial and investment consulting
	Making efforts to enhance the financial and technical efficiency of the medical sciences universities' executive systems, and therefore, to raise the time and financial productivity
	Organizing the existing resources to enhance the productivity and economization
Changing the procedure of the wealth accelerator centers	Conducting the wealth-creator startups and virtual technological conferences to encourage the members to virtually participate in these fields
	Establishing the knowledge enterprises to change the treatment, research, and production methodology by the medical specialist
	Presenting knowledge enterprises in the university laboratories
	Conducting health-care technologies startups

ICT=Information and communication technology, R and D=Research and development, IT=Information technology

- Technology, such as systems, applications,...."*
- C. *"In tele-health, there is an intense open area called telemedicine... Monetization can take place inside the country and worldwide. As indicated in the researches, a great deal of wealth is transferring towards tele-health and «tele» fields, such as telemedicine, tele care, etc., The universities can contribute to this field in the realm of wealth creation."*
- D. *"The other item is the methods being utilized in many top universities, inviting risk-taking investors. Look, we have*

a topic that is mostly discussed in startups. called angels or risk-taking investors. Angels are great supporters. These individuals support innovative plans. “

- A. “What is university perspective? In other word, a university capability to foresee the next few years is important. This matter is really important. For example, say, I want to distribute a medicine in the world for another 5 years with a turnover of billions of dollars. University graduates should go to the banks and Investment sources... banks should provide financial support...”
- E. “All of these should lead to money-making: establishing an alumni database. The universities should have an alumni database; and, should know how many graduates there are and where the graduates work. “
- F. “The relationship between universities and councils of provincial/urban development planning should be established so that they can observe the capacities at the level of a province or state; as an illustration, various universities of Mazandaran can conduct a meeting, to talk about the cultivation type, having the medicinal cultivations, and solving the pesticides usage.”
- G. “The second area is the research. Practical dissertations will reduce costs and increase productivity when they are product-based...assume that a Nanoscience or chemistry student should know whether he/she is accountable for the services provided by the university or the community; therefore, he/she selects and executes her dissertation based on that topic, and as a result, the problem of entrepreneurship and wealth creation is solved....”

Wealth-creation path in medical sciences

Data analysis indicated that the wealth-creation path of medical sciences universities generally consists of six main categories. [Table 4].

Sample excerpts from interviews:

- A: “For example, what I did was that I first tried to explore the needs of community. I mean, I went to the hospitals in order to understand the needs. Then, I figured out what the problem is and what are the problems that an optometrist [or other specialists] face. Since my specialty is Medical Nanotechnology, I am talking about my specialty. I went to the hospitals to find out what problems an optometrist has that can be solved by nanotechnology. [Or] What problem a pulmonologist has; therefore, I extracted the needs [of specialists] from the hospitals. The needs that might be taken as granted for others in other settings.... Accordingly, I was able to consider the issues that seem literally missed, or act as a threat or an opportunity. So, I detected the needs.”
- D: “The product that I emphasized on was money making, not only for myself, but for most of other parts of the community to solve their problems in this era of Coronavirus outbreak. Thus, in addition to money making, I feel good due to being able to solve a problem. I think such a feeling is so valuable because others enjoy the happy-ending results. The

Table 4: Wealth creation pathway in medical sciences

Theme	Sub-theme	
Setting goals for wealth creation	Value creation	
	Prevention and promotion of community’s health	
	Promoting the quality of life	
	Adding financial value	
	Profitability	
	Raising the stakeholders’ wage	
	Creating financial resources	
	Self-sufficiency	
	Self-esteem	
	Culturalization	
	Earning the skills	
	Applied knowledge	
	Social accountability	
	Where we are and what facilities we have	The Attending hospitals
Assessing needs		
Identifying the strengths and weaknesses		
Identifying the opportunities		
Identifying the threats and risks		
Conducting meetings in hospital in the presence of innovative students to solve hospital problems		
Considering the community’s problems and creating wealth altogether		
Identifying solvable problems through the related specialized field		
Where we are headed to		Identifying rational vision and mission based on the facilities
		Assessing labor market
	assessment (customer acquisition)	
	Communicating with food and drug organization	
	Communicating with hospitals and shopping centers	
	Merging information related to the market and demand	
	Conducting feasibility studies and assessing technical and economic justification of products	
	Planning for this path	Identifying the components and stages of the work
		Calculating the cost-benefit/effectiveness
	Examining the change capacity	Identifying the people’s resilience
Managing change		
Products manufacturing	Determining the leadership strategies	
	Fostering particular specialties	
	Providing the services leading to wealth creation	
	Creating hardware or software products	

enjoyment of being employed is at a high level. The feedback of children (whose problems are solved by this method) and the families (whose concerns are addressed), indicate that we have taken a step forward in our specialties.”

- E: “We make a change for which most of people might not be convenient to accept; or, in some cases, they are reluctant to accept these changes. Therefore, we have to see how much

capacity there is for a change. In other words, we should handle them.”

- F: “We do not necessarily have to look for big changes and issues. Look, the problems are much slighter than we assume. If we want to think big, an entrepreneur university is the one that can solve very insignificant, though effective, problems.”
- H: “In many cases we look at the financial concept of wealth. in some cases, wealth of universities is cultural wealth. in some cases, self-esteem is considered as wealth. or in some, it is the acquisition of applied knowledge, so that one we can act accordingly. skills can be considered as wealth. these must be taken into account.”
- N: “Because of being attentive to health, a medical sciences university is different from the technical or humanities universities. When a medical sciences university is able to prevent and improve the health level and the quality of life, this is a type of wealth. It can even be turned into money, but it is difficult. By promoting a medical sciences university, the government will definitely spend less costs. All of these will have economic added value and can be turned into money.”

Discussion

The current study conducted to explain the viewpoints of the wealth creators of medical sciences regarding wealth creation strategies and the general path of wealth creation in medical sciences universities.

The findings showed that we can concentrate on nine categories for wealth creation that include “the productions”, “contracts and relations”, “revising, predicting and foresight”, “interdisciplinary fields between IT and health-care”, “research”, “education”, “healthcare services”, “saving and maintenance” and “altering the procedures of wealth accelerator centers”. Most of the mentioned subcategories are in correspondence with other studies^[9-11]. However, what is highlighted in the current study is concentrating on the interdisciplinary fields between IT and Health and integrating technology to the various fields of medical sciences in the COVID-19 pandemic.

As an example, the importance of education for wealth creation was considered by Birasnav *et al.*, Mitra *et al.*, Braak and Lewin, Blackmore *et al.*^[6, 10-12]. Due to its important role in the community, similar to empowerment, knowledge generation and human capital creation, education is the center of attention in terms of wealth creation. Nevertheless, according to the participants’ claims in the pandemics, such as COVID-19 pandemic, integrating education with technology, and using distance and online modes for teaching and learning are required more than usual. In these cases, producing e-educational products and providing e-services will create wealth. More, the

sub-categories found in this research were emphasized in Siyanbola *et al.* study^[13].

Some of the studies indicate that the options such as developing novel therapeutic drugs and the discoveries associated with medical diagnosis and technologies can create wealth.^[14] This confirms the treatment and care category of the current study that is influenced by the COVID-19 pandemic. It seems that from the viewpoints of the participants of the current study in the COVID-19 pandemic, issues such as therapeutic tourism cannot create wealth as much as before, since with respect to the travel bans and/or travel restrictions, between countries or even cities and states of a country, attracting foreign patients is focused less. However, providing services in fields such as nursing and psychiatry, particularly for companies and different industries, could be beneficial. In addition to the fact that we should be cautious to this point and do not neglect moral and ethical considerations of health as a wealth; because, according to the other studies, promoting community health is also defined as wealth creation and is of a great value in medical sciences.^[15]

According to this study, contracts and relationships as well as productions are two other categories for wealth creation in medical sciences. Sellés *et al.* also stated that there must be a strong relationship between companies and universities.^[3] According to the findings of this study, to gain income, there is a need to change the manner of wealth creation accelerator centers. It seems that the saving and maintenance of the existing resources and wealth have a significant importance, more than before.

The categories of organizational rules and strategies, leadership and management, supervision and assessment had been identified in the Fatima study.^[16] Nevertheless, according to the findings of the present study, these categories could be considered from another perspective and be entitled as “revising, predicting and foresight”.

Moreover, the findings of this study indicated that according to the viewpoint and experiences of wealth creators, six main categories and 25 sub-categories were identified for the wealth creation path. Despite the fact that this is a general path that is adaptable to diverse conditions, examining these categories and sub-categories will demonstrate that the major difference in wealth creation path of medical sciences universities is based on the type of the services rendered; especially health services, and the customers. In other words, the wealth creation path in medical sciences universities has its own unique form, which stems from its nature and existential philosophy. Medical sciences universities

should adapt their various activities, education, research, and service, to prioritize the health needs and challenges of societies and be accountable to them.^[17,18]

In regard to the category of “setting goals for wealth creation”, a vast majority of participants stated that due to the specific nature of medical sciences, the wealth creation goals and tasks and activities of the medical sciences universities must be determined. In addition, they believe that in medical sciences, the material and spiritual goals of wealth creation must be taken into account, and the university must be beneficial to the community. In some studies, health and prevention as well as promotion of community health are considered as a goal and wealth for medical sciences universities.^[19,20]

Further, a vast of the issues related to the category of “where we are and what facilities we have” is focused on hospitals and their necessities. Therefore, it is specific to medical sciences universities. The category of “where we want to be” is mainly concentrated on determining a prospective view and marketing of a university, and examining the possibilities that somehow depicts creating a strategic and operational plan for organizations.

According to the current study, Categories of “planning for this path”, “examining the capacity of change”, and “products manufacturing” are the next categories of the wealth creation path in medical sciences. Ismail and Sidek *et al.* study emphasized issues such as university facilities and support, commercialization and marketing, and the commercial products.^[21] Also, Sung and Kim study showed that change management factors have a positive effect on innovative behaviors and organizational innovation.^[22]

In this study, while identifying the strategy of wealth creation in medical sciences universities, the path of wealth creation was also depicted that fills the gap of the current studies. Also, wealth creation path was determined on the basis of the interviews with experienced people who have already passed this path. Another noteworthy point in this study is its fitness to the roles and responsibilities of medical universities that helped improve the quality of rendering medical services while creating wealth. It can be reflected in the findings related to strategies, such as production, education and research sub-categories, and total findings of the path to wealth creation.

Conclusion

In this study, both strategies and the path of wealth creation in medical sciences universities were determined. The findings could be used as an advantageous guide for wealth creators of medical sciences, especially the novice.

The participants had more emphasis on advantages of technologies in wealth creation in the COVID-19 pandemic. Thereby, it is recommended that the industry collaboration centers or entrepreneurship units of universities consider this matter in making decisions and planning to develop academicians (professors, students, graduates, etc.) via technology development programs

Limitation and recommendation

Although, the participants were selected from different Iranian universities, the present study was only conducted in one country. Therefore, further studies are suggested to collect successful experiences of several countries about wealth creation of medical sciences universities. Therefore, this limitation could be addressed and used to guide the future researches.

Ethical considerations

This research is approved by Iran university of Medical Sciences Research Deputy, Tehran, Iran (ethics code: IR.IUMS.FMD.REC.1398.332). After coordinating with the participants and sending the information sheet to all the study participants, their informed written consent was secured. The research was in accordance with the Declaration of Helsinki.

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Conflicts of interest

There are no conflicts of interest.

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