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# Key educational and research factors affecting the future of medical education discipline in Iran: A qualitative study

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## Abstract:

**CONTEXT:** Along with the evolutions of medical sciences education, the importance of medical education discipline has gained more attention for keeping up with these evolutions. Therefore, paying attention to policymaking regarding the development of this discipline and its position in universities is very necessary.

**AIMS:** This study has been done with the aim of investigating key educational and research factors affecting the future of medical education discipline in Iran.

**SETTINGS AND DESIGN:** This is a qualitative study with directed content analysis approach, which has been conducted in eight medical sciences universities having medical education department (Tehran, Iran, Shahid Beheshti, Isfahan, Mashhad, Shiraz, Tabriz, and Kerman) in 2018–2019.

**SUBJECTS AND METHODS:** A total of 25 participants (professors, students, and graduates) of medical education discipline were selected by purposeful sampling and with maximum diversity. Data were collected through semi-structured interviews. Interviews were analyzed using MAXQDA software.

**RESULTS:** After analyzing the data, a number of 1561 initial codes were obtained, of which 914 codes were extracted after removing repetitious codes and merging similar codes. Finally, the obtained results from content analysis were classified into two main categories including key educational and research factors and ten subcategories.

**CONCLUSIONS:** Among the most important key educational and research factors affecting the future of medical education discipline, it can be mention to the role of the discipline curriculum and need to revise it, the need to monitor the graduates and their status , globalization, the role of medical education centers and departments, and the role of theses. It is recommended that future studies investigate other key factors affecting the future of the discipline.

## Keywords:

Education, future, key factor, medical education discipline, qualitative study, research

## Introduction

The evolution of educational and research programs throughout the higher education systems of leading countries is an inevitable and continuous process of development.<sup>[1]</sup> The origin of these evolutions are megatrends, driving forces,

and key factors that can have national, regional, and even international effects.

Among the effective changes and evolutions on medical education, we can point to globalization;<sup>[2,3,4]</sup> a rapid increase in the number of medical schools,<sup>[5]</sup> the growth and expansion of interdisciplinary educations; moving toward competence-based medical

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education and accountable to the needs of society; growing responsibilities for community health, Growth of technologies such as augmented reality and artificial intelligence, telemedicine, medical tourism;<sup>[2-5]</sup> changing teaching and learning methods from traditional methods to new approach;<sup>[6-7]</sup> expanding disciplines and universities of medical sciences; and increasing professor and student admission capacity. The mentioned changes and evolutions have forced policymakers to develop programs to confront and acquire readiness for better match and adapt with these evolutions. Therefore, in 2015, a plan was developed and implemented with the title of plan of educational system evolution,<sup>[8]</sup> and packages of transformation and innovation in medical sciences education,<sup>[9]</sup> with the purpose of making structural changes in the educational system and providing educational promotion contexts in medical sciences universities of Iran.

In order to achieve the goals of the educational system, evolution plan, and the packages of transformation and innovation in medical sciences education and adapt to continuous changes and evolutions of the educational system, the importance of existing a science or discipline that can help stakeholders to keep up with these evolutions is among requirements.<sup>[10]</sup>

Medical education discipline is one of the disciplines that its ultimate mission and aim is to train graduates that utilizes the latest knowledge and technologies, and the existing changes and evolutions can lead to improve the quality of education and research in various areas such as planning, evaluation, leadership, and management in the medical sciences education system in order to promote the health system.<sup>[7,11]</sup>

Contemplation on the ultimate mission and aim of the medical education discipline that mentioned it in the discipline curriculum indicates the important role and position of this discipline and its graduates in achieving the aims of the educational system evolution plan and keeping up with educational system changes and evolutions. Therefore, paying attention to policymaking regarding the development of this discipline and its position in the medical sciences universities is very necessary, and this matter will ultimately affect the education quality of medical sciences disciplines.

Despite the important role and position of medical education discipline in the medical sciences education system of the country, this discipline has also been faced to challenges like other emerging academic disciplines. Among these challenges, we can mention to increase student admission capacity, especially in virtual courses and so lack of proper management and control of discipline entries, diversity of volunteers'

entry characteristics (entry of people from various disciplines such as general practitioner, clinical PhD, and super-specialty, pharmacy, dentistry and faculty members of medical sciences department) and other challenges.<sup>[12]</sup>

The problems and challenges facing the discipline of medical education have been confronted stakeholders with concerns about the future of this discipline. Therefore, foresight and acquire readiness for confronting with the future risky conditions of this discipline through achieving collective wisdom is essential.<sup>[13,14]</sup>

This study has been done with regard to the trends, events, changes, and challenges facing the medical education discipline, investigating key educational and research factors affecting its future and relying on participation of stakeholders.

## Subjects and Methods

The present qualitative research is a qualitative content analysis with the directional approach. The study participants included 11 professors, seven students, and seven graduates from eight universities having medical education department (Tehran, Iran, Shahid Beheshti, Isfahan, Mashhad, Shiraz, Tabriz, and Kerman). Sampling was performed purposeful with maximum diversity. Different criteria were considered to select professors, students, and graduates. To select professors, it was considered to have one of the criteria (membership of the discipline board commission, full-time faculty member in the medical education department, teaching at least one specialty course of the discipline, and experience of at least 5 years experience working with the medical education department). Also, students and graduates from two master (in-person and virtual) and PhD in medical education discipline entered the study. Regarding the variety of features of volunteers entering the discipline (including previous educational discipline, whether or not the previous discipline was related to medical education, employment or not, and other features), it was attempted to consider maximum diversity in their selection. Data were collected through semi-structured individual interviews and in two in-person and by-phone methods that were conducted by the first author. The time and place of the interviews were determined at participants' own choice. The researcher started to interview after introducing herself and expressing the aim of the study and obtaining informed consent form. The time of every interview lasted 45–60 min. Totally, 18 in-person interviews and seven by-phone interviews were conducted. At the beginning of the interview, this question was asked that please express your experience in medical education discipline How do you evaluate the trend of

this discipline so far? The following interview probing questions were asked based on the response of the participants: that in your opinion, what key factors can affect the future of medical education discipline? What factors in education and research area of this discipline can affect the future of it? How will be the effect of these factors on the future of the discipline? The interviews continued until data saturation was achieved and no new themes emerged. Interviews were analyzed after transcribed (word-by-word) using MAXQDA software V10.0 (VERBI GmbH, Company; Berlin, Germany).

### Trustworthiness

Four components provided by Lincoln and Guba (credibility, dependability, transferability, and confirmability) were used to do determine the accuracy and reliability of the data.<sup>[15]</sup> Credibility of the data was obtained by selecting participants with diverse characteristics such as gender, age, different previous disciplines, and different experiences and perspectives. Credibility was also achieved through member check. In this way, the general themes extracted from the data analysis were made available to the participants and changes were made to the codes and categories based on their opinions. For dependability of the data, an expert in qualitative research was used to examine the category of the data. Transferability was also achieved through fully explaining all the steps of the method and extracting data from sampling, analysis, coding, and categories. For confirmability of the data, all stages of study from data collection to analysis were also examined and verified by an external observer.

### Ethical considerations

This study is part of a PhD dissertation of medical education discipline in Medical Sciences University of Isfahan, which has been approved by the code of ethics IR. MUI. MED. REC.1397.179. People's consent to participate in the interview was obtained by written informed consent form. All participants were aware of the aim of the study and the recording of the interviews. The process of doing interviews and analyzing them was conducted by the interviewer herself. Specific proprietary code for each participant was used to be anonymous and protect participants' privacy. The participants were also assured that participation in the study was voluntary and could be excluded at any time.

## Results

The study participants included 11 professors, seven students, and seven graduates. Of the interviewees, ten were male and 15 were female. The mean age of the participants was 45 years  $\pm$  7.75, with age range between 28 and 56 years.

After analyzing the data, totally, 1561 initial codes were obtained, of which 914 codes were extracted after removing repetitious codes and merging similar codes. Finally, the data were categorized into two main categories which included ten subcategories [Table 1].

### Key educational factors

From the perspective of the participants, discipline curriculum and the necessity of its revision, the quantity and quality of the discipline activities and monitoring it, the need to revision of the discipline regulations in Master and PhD, evaluation and monitor the status of graduates and their job positions, globalization and its impact on teaching methods of learning, the role of the university as a system and organization as well as its affiliated institutions including education development centers (EDCs), education development offices (EDOs), and medical education departments are among key educational factors that can have a great contribution to shape the future of medical education discipline.

### The role of the discipline curriculum

The majority of participants considered it necessary to revise discipline curriculum in Master and PhD based on the competency-based curriculum paradigm, to perform timely revisions based on the time standard of curriculums revision as well as to supervise the correct implementation of the curriculum in future. They pointed to mismatching of curriculum content with job expectations, contradiction of strategies and teaching methods of learning with expected competencies of graduates, and the need to move in line with curriculum goals and mission.

*"If a curriculum want to become a competency base, our Masters and PhD curricula should be that means we must first develop our competency framework and then develop a competency-based curriculum based on a competency framework that doesn't exist anyone"(p23).*

**Table 1: Categories and subcategories obtained from data analysis**

Categories	Subcategories	
Key educational factors	The role of the discipline curriculum	
	The quantity and quality of discipline activities	
	The discipline standards for both master and PhD	
	Evaluation and monitoring of graduates status	
	Globalization	
	The role of the university on the training of competent graduates	
	The role of EDCs and EDOs	
	The role of medical education departments	
	Key research factors	The role of theses on the development and improvement of the discipline
		Valuation to research in education

EDC=Education Development Center, EDO=Education Development Office

### The quantity and quality of discipline activities

Participants believe that medical education discipline require continuous monitoring and evaluation due to its interdisciplinary nature, being abstraction of the topics and its gradual effectiveness, and the extent of its areas and topics.

*“Activities of the discipline should be monitored annually, evaluate whether the university has achieved the goals that were written at the time of launching the discipline or fail to achieve them” (p17).*

### The discipline regulations for both Master and PhD

According to the participants’ belief, this discipline is easy from the perspective of some people and its admission is easier than other disciplines. On the other hand, the entrances to medical education discipline are very diverse; this makes it difficult to manage and control the inputs and outputs of the discipline, and the outputs of the discipline are not qualified or competent individuals. Therefore, the need to revision these regulations should be considered by planners and policymakers in future.

*“If we are going to get a Master’s degree we must have an interview. Persons who have an educational background or have educational experience, can enter this area, even with unrelated previous discipline. It is in the favor of the education system of the country that at least we can change our selection to some extent” (p6).*

### Evaluation and monitoring of graduates status

According to the majority of participants, no monitoring and evaluation of the graduates’ status has been done since the admission of student. In their opinion, necessity to pay attention to this factor in the workforce planning of the discipline and its future policymaking is so necessary.

*“We don’t evaluate our discipline graduates, where our students gone, how effective they were. We’ve got Masters Student for about 10 years or more, now it is a good time to evaluate. Evaluation results can greatly help our policy making in the future” (p19).*

### Globalization

Participants pointed to the issue of globalization and its effect from education dimension. They believe that globalization has had a significant impact on changing educational methods and moving from traditional methods to modern educational methods. This will make the mission of medical education discipline heavier to faculty development to employ new methods and adapting the educational system to these evolutions in the future.

*“Globalization, in fact, is a megatrend that today’s world is moving toward the global village, and maybe there would be no geographical boundaries later. Maybe this classes that we are seeing now, a student is sitting in the classroom like this, may be there would not be in this form later and we’ll see these changes quickly in the 10-year or 15-year horizon” (p6).*

### The role of the university on the training of competent graduates

Participants believe that university as one of the important institutions of education trustee can play a great role in training the qualified, competent graduates and their future of career. These people can have a significant impact on changing and improving their views on the discipline and its position.

*“I am satisfied of my discipline and love it, but I think the place where I study is very important for my future of career, for my future of the work, and that to what extent it give me an opportunity to implement those educational ideas. I thought I could make better choices in this regard” (p1).*

### The role of Education Development Centers and Education Development Offices

EDCs and EDOs can play an important role in the future of the discipline and its growth and expansion as part of the organizational structure of universities and as the executive arms of medical education activities.

*“EDCs are actually a work ward of medical education. Aa a ward of internal specialist is an internal ward where graduates of the discipline must enter it, train and practice there” (p18).*

### The role of medical education departments

The role of medical education departments as trustees of training qualified and competent human resources in the discipline of medical education should also be considered in the future of the discipline. These departments, in addition to training competent graduates, have other missions such as selection and absorption faculty members and talented and interested experts to medical education issues, identifying the strengths and weaknesses of universities, and recognizing the progress and development factors of world universities in order to improve the status of medical sciences universities of the country, and the growth and development of medical education discipline.

*“Our goal to train medical education specialists is to move on the boundary of medical education knowledge and to exalt this knowledge in the country. This will be achieved when we establish academic departments of this discipline in our own country. In our universities except several universities, there is no approved medical education departments in neither of them” (p10).*

### Key research factors

As education becomes important in universities,

necessity to perform educational researches in order to solve educational dilemmas and improve the quality of education is necessary.

### The role of theses on the development and improvement of the discipline

Participants believed that in future planning, special attention must be paid to topics such as precision in selecting titles of applied theses and proportional to educational needs of the country, not being repetitious, and their alignment with the priorities of the country's upstream documents.

*"Basically, researches and theses should be in such a way that problems find with regard to our own country, prioritize them, and persons consider it with regard to areas of interest and expertise that they have, under one particular style and do research on it" (p13).*

### Valuating research in education

Regarding the growth and expansion of research plans in the education and discussion of scholarship and its importance, the participants also considered this factor to be very effective as a key factor in the future of the discipline. The importance of this issue is to the extent that one part has also been considered to this subject and the necessity to earn its scores in the promotion regulation of the faculty members.

*"In my opinion that in the future, the medical education community will need more evidence not necessarily evidence that we produce. But also the evidence that we can take to a position that policymakers and decision makers can use it, namely in fact Best Evidence or evidence-informed decision making" (p25).*

## Discussion

This study was performed with the aim of investigating key educational and research factors affecting the future of medical education discipline from the perspective of professors, students, and graduates. Based on the performed content analysis, it was clarified that in the area of key educational factors, the most frequency and emphasis was related to the role of the discipline curriculum. With regard to the importance of the competency-based curriculum paradigm and the training of graduates accountable to the needs of the community, the discipline curriculum can play a vital role in the future of it. Delay in discipline curriculum revision in master and PhD based on the revision time standard of curricula (once every 5 to 7 years) can effect on the discipline and its future. Considering that one of the first and necessary measures to revision the discipline curriculum is identifying the expected competencies of the graduates. Keshmiri *et al.* performed

a study related to identify the competencies framework of the PhD course of medical education discipline as a preliminary step for revision paradigm-based discipline curriculum of the competency-based curriculum. The results of this study indicate that attention to competency framework is essential for developing a comprehensive and integrated curriculum. Competencies such as professional specialist, research and teaching scholarship, interdisciplinary collaboration, management and leadership, professionalism and personal and professional growth, and development have been considered in this framework.<sup>[10]</sup>

Performing comparative studies of the discipline curriculum with other world-renowned universities is among other measures to revise the discipline curriculum. Karimi Moonaghi and Montazeri conducted a comparative study related to curriculum of Masters in medical education discipline. The results of this study indicated that the curriculum of medical education discipline in Iran is a complete and comprehensive program, but necessity to revise some parts of the program including goals, strategies, and teaching methods of learning, how to admit from Master presenting some courses, including compensatory courses in other form, and emphasis on some courses, including research methods in education are necessary.<sup>[16]</sup>

One of the features of the medical education discipline that can affect the discipline effectiveness and consequently its future is abstraction of some concepts and topics. Many of our participants believed that most concepts and topics of the discipline have abstract nature and are not tangible for the audience. In other words, the effectiveness of these topics in practice is gradual and definite matter. This matter make the responsibility of professors and graduates of the discipline heavier to be empowered through creative, practical, and applied educational methods. Therefore, empowering graduates of disciplines to acquire high creativity and skill along with positive knowledge and attitude, is among the concerns of any educational system.<sup>[17]</sup>

In general, educational activities, due to their gradual effectiveness, require monitoring and evaluation to ensure their effectiveness in practice. In this regard, transformation and innovation packages in medical sciences education<sup>[9]</sup> are among the measures that have achieved this goal to some extent. Creating change and evolution in the activities of universities and EDCs and EDOs and their medical education departments have been among the positive points of these packages in education. Of these changes are periodic evaluations of educational activities, the need to documentation them, and to evaluate and receive feedback. The role of scientific communities such as the Iranian Conference

on Health Professions Education and programs such as the Shahid Motahhari Festival, which provide possibility for sharing, presenting, and critiquing university educational activities, can also be a measure to evaluate and monitor this type of programs. Participants in this study believed that the number of these kinds of programs should increase in future, and these activities should be continuously monitored and evaluated.

Due to its interdisciplinary nature, the medical education discipline requires interdisciplinary teamwork and reinforcing it with other disciplines. In their research, Wei and Lau also emphasized the importance of teamwork and considered its role important in managing organizational human resources.<sup>[18]</sup>

The discipline regulations in master and PhD and the necessity to revision it are among other factors that must be considered in future. The comparative study of Karimi Moonaghi and Montazeri has also considered the necessity of revising the master's curriculum and the necessity of clarification and presenting necessary explanations regarding the virtual and in-person courses and how to admit student. In accordance with the curricula of other universities, it seems better to do student admission from bachelor so that all interested persons can enter this discipline, volunteers with a bachelor's degree, may be among those involved in medical sciences education topics, and may require specialized study in this discipline.<sup>[16]</sup> The results of this study were not consistent with the opinions of the participants of our study, because our participants believed that the input of the discipline should be restricted and be controlled. They were opposed with individuals' entrance from bachelor degree, especially in virtual courses where individuals' entrance was only possible through presenting resumes. They believe that individuals with a master's degree in medical education or related to it, with educational background and experience, should have permission to enter this discipline. In addition to the master's degree, the necessity to conduct comparative studies in relation to the doctoral degree and revision it are among requirements in the future of the discipline.

One of the other important and worrying key factors in the future of the discipline is the lack of a system for monitoring and evaluating the status of graduates. Paying attention to this matter can help greatly in estimating workforce and consequently correct managing and controlling input and output of the discipline. Cusimano and David in their study examined health profession education programs in 15 universities. In this study, the graduates' career status of some of these courses has been monitored. Regarding that the purpose of these courses was to empower individuals to acquire leadership positions in the health professions, a survey

of several universities including UCLA, Washington, Texas South Western, Southern California, showed that graduates of these courses were able to be attracted in appropriate and anticipated positions in the course plan, including manager and planner of continuing medical education courses, program evaluator, and consultant in medical sectors and employed their capabilities.<sup>[19]</sup>

Globalization and its consequences effect not only on the future of medical education discipline but also on the future of all disciplines. One of the important effects of globalization is its significant impact on the evolution of teaching and learning methods. One of the reasons for this matter is the rapid and growing advances in communication technology, simulation, and virtual education. Misra challenges educational policies in his study related to the consequences of globalization on education. According to the results of this study, each country needs to develop its own approaches to updating professors' education in light of globalization. Global evolutions require the development of new skills, experiences, and knowledge of educational institutions.<sup>[20]</sup>

The contribution of key research factors in the future of the discipline should not be overlooked. Theses and their role in expanding and promoting the discipline at national and international levels are among the cases that need to be considered in future. This requires the promotion of theses quality, selection of applied topics, and publishing of results at national and international levels. Therefore, necessity to monitor and evaluate theses and research plans in the future of the discipline is necessary. In their study, Ten Cate *et al.* presented seven criteria for evaluating doctoral theses of medical education. These seven criteria were the size or extent, breath of research skills exhibited, coherence of studies, relevance to field, validity of conclusion, style, the power of communication and ethics, and the impact of the performed work. These criteria can guide theses to acquire award of excellence.<sup>[21]</sup>

In recent years, due to evolutions in the education system as well as programs such as evolution plan and packages of transformation and innovation in medical sciences education, the topic of research plans in education and scholarship has been considered to improve the quality of education in medical sciences universities. The importance of this matter is to the extent that in the regulation of promotion of the Iran faculty members, a part of the privileges are dedicated to this affair for promotion of a faculty member.<sup>[22]</sup> Earning scholarship privileges in the promotion regulation requires conducting educational researches, implementing faculty development programs, and providing evaluations feedback.<sup>[23]</sup> These requirements crystallize more attention to the role of the medical education discipline,

its mission, and the responsibility of discipline graduates for it in future.

As one of the most valuable resources and institutions of the society, the university plays an important role in the development and progress of that society. Therefore, training competent graduates as the human resources of this institution and being responsive of them to the needs of the society is among the requirements of future. Revision of the curriculum and addition of skill units are among the ways to achieve this goal.<sup>[24]</sup> On the other hand, with respect to university generation change toward the third- and fourth-generation universities, necessity to train the creative and entrepreneurial graduates is very necessary.<sup>[25]</sup> The discipline of medical education also requires training creative, entrepreneurial, and competent graduates in order to fulfill their goals and mission as well as accountability to evolutions of the educational system. Certainly, competent graduates can bring a more desirable future for the discipline.

EDCs and EDOs have a variety of purposes and duties as executive arms in the medical education discipline. The World Health Organization has enumerated a variety of tasks at the beginning of formation of these centers. Contemplation on these roles indicates important position of these centers in the development of education in medical sciences universities, which can be effective on the future of medical education discipline. Of these roles can be mentioned to curriculum planning, evaluation, faculty development, continuing medical education, and research in education. In recent years, however, with regard to expanding the activities scope of these centers and the number of their formation in universities, the task dimensions of these centers have been wider.<sup>[26]</sup> In their study, Ahmady *et al.* examined and compared the performance and structure of EDOs at 11 centers in three US, European, and Asian regions. As the results of this study show, most of these centers focused on faculty development and scholarship. In Iran, one of the main goals of establishing EDCs is also to identify and publish medical education knowledge. Therefore, one of the tasks of these centers is paying attention to faculty development and empowerment programs. Holding workshops and related conferences are among the programs related to this goal. Among other topics are focused by these centers are educational scholarship. The importance of this issue is to the extent that special attention has recently been paid to this issue in the promotion regulation of the faculty members.<sup>[27]</sup>

Medical education departments, such as EDCs and EDOs, as part of the medical education organization

at the University of Medical Sciences have the duty of promoting the education quality and its development. Therefore, the role of medical education departments in the future of the discipline is also important. In their study, Batool *et al.* examined faculty members' expectations from medical education departments. According to the faculty members' view, medical education departments play an important role in faculty development, curriculum planning and implementation, student support, policymaking to motivate students, teaching strategy improvement, student assessment, quality improvement, and medical school accreditation. From the perspective of the faculty members, medical education departments should interact with the professors and utilize the consultation of the professors to achieve their goals.<sup>[28]</sup>

The global growth and expansion of medical education in the form of short- and long-term courses, masters, and doctoral courses around the world; increasing number of faculty members; and accreditation institutions requirements has caused that the need to evaluate these programs, being clear of evaluation and accreditation criteria, is very important. In addition, it must ensure that all programs have a minimum acceptable quality.<sup>[29]</sup>

### Limitations

With regard to the diversity of participants (from professor to student), these individuals had different perspectives on the future of the discipline and key educational and research factors affecting it. Therefore, this diversity as well as the number of universities and time and space constraints did not provide the possibility for holding in-person meetings such as expert panels, focus groups, and brainstorming. This limitation led the researcher to use a qualitative method to obtain stakeholders' views. Other limitations of this study include the lack of statistics and quantitative information on the status of the discipline. Undoubtedly the existence of this information could increase the power of the study data.

### Conclusions

The ongoing changes and evolutions in the society have made the mission of the education system more serious in responding to the emerging social change and needs; therefore, policymakers and planners of medical education discipline are inevitable to think future in order to achieve desired future and acquire necessary preparation for better confrontation to these evolutions.

Among the most important key educational and research factors affecting the future of the discipline, are the role of the discipline curriculum and need

to revise it based on competence-based curriculum, globalization, lack of accurate information on monitoring the status of graduates and their job positions, role and the importance of theses in the direction of growth and expansion of the discipline and the role and importance of medical education centers and departments to maintain the position of the discipline and stabilize it. This study is a preliminary step to predict the future of the discipline. Future studies are suggested to examine other effective key factors on the future of the discipline.

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### Conflicts of interest

There are no conflicts of interest.

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