Original Article

Designing a conceptual model for dynamic empowerment of medical science education managers

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Abstract:

BACKGROUND: Educational managers at universities of medical sciences are the suppliers of human resources to the healthcare system. Thus, attention to their professional empowerment can play a prominent role in improving the quality of medical science education.

MATERIALS AND METHODS: The present study was implemented through the method of modeling and in the three stages of conceptual, modeling, and validation. The research environment was the medical science universities of Iran and the sampling method was purposive. The two qualitative approaches of literature review and semi-structured interview were used to develop the components of the model. The results were then integrated, the relationships between the components were investigated, and the model was eventually finalized. The resulting scores were analyzed using MicMac software.

RESULTS: Twelve categories and 20 subcategories were identified in the first micro-study (desk research). Qualitative analysis of the interviews in the second stage led to the identification of 21 subcategories and seven categories. Components of the conceptual model were extracted from the results of the two first stages, both of which were aimed at the extraction of concepts relevant to dynamic empowerment of medical science educational managers, and the conceptual model for dynamic empowerment of medical science education managers was designed in the six categories of education, decision-making, organization, belief, dynamic capabilities, and environment after the interactions between the components were studied.

CONCLUSIONS: Results of the present study revealed that dynamic empowerment of the managers is a multifaceted and multidimensional concept, and all of the factors incorporated in the conceptual model for dynamic empowerment of managers must receive special attention.

Keywords:

Dynamic empowerment, educational managers, medical science education

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Introduction

Given their impact on the behavior of staff and relevant individuals, managers can play a decisive role in an organization and impact the implementation of organizational missions, employee's behavior, and how the organization interacts with other organizations and the community. Advancements in science and technology have challenged the capabilities and skills of organization managers, and managers' capabilities must be restructured based on a new and organized plan to deal with these fast changes. Thus, successful management in a constantly changing environment is impossible without persistent professional development.[1] The increase in the demands of the stakeholders (family, the community, professors, students, etc.) for accountability and increased educational fees have made the management of universities more complicated and multidimensional. Therefore, managers at the current educational institutions are not merely in charge of managing,

organizing, supervising, monitoring, and creating order in the educational environment, but should rather have special individual and professional traits that enable them to deal with and respond to the increasing needs of the learners.[2] Alongside the mentioned challenges, many studies have mentioned the irony in working to educate others while neglecting one's own professional needs in addition to describing the shortcomings in empowerment opportunities available for higher education managers.[3] The lack of a proper and effective system for the development of human resources in this sector will lead to inadequate and poor services, inefficiency and ineffectiveness, lack of quality improvement, and eventually, the disintegration of the healthcare community.[4] However, the dimensions and components of empowerment in higher education are not entirely clear despite the broad application of empowerment models.[5] To deal with these challenges, management development activities must be focused on in a meaningful and purposeful manner that is timely and feasible for leaders, and universities must be encouraged to make serious investments in the field of the managers' professional development.[6]

The topic of leadership and management empowerment has attracted a lot of attention, and empowerment increases the managers' decision-making power and awareness and the progress of those following them.[7] Attention should be paid to the professional development of managers at medical science universities as training of human resources at educational universities, for the healthcare system, can play a significant role in improving the quality of medical science education. Similar to other human institutions, universities of medical sciences need empowered, proficient, and effective managers and leaders who can deal with the challenges and threats of the modern world.[6] As the responsibility to cure patients, discover new medical knowledge, and train the future generation becomes more complex, the specification of professional paths and the general empowerment of the managers in the field of medical education gains more importance in healthcare systems, so that addressing these issues can significantly contribute to medical sciences universities and institutions.[8]

The importance of dynamic empowerment of the managers and the necessity to adopt empowered management can be traced back to the strategic responsibilities and tasks of the managers. To describe the importance of management in educational environments, it must be noted that management is an extremely complicated job that depends on a set of ideal responses in the face of various unpredictable events. Efficient managers persistently reread the current situation and evaluate the compatibility of their behavior with the new conditions. This reactive method is necessary,

particularly during periods of fluctuation and when leaders need to evaluate the current situation and adopt the suitable reaction rather than relying on a standard model.[9] Therefore, it is necessary to empower leaders and managers in the dynamic context of leadership. Considering this, dynamic management empowerment models will be required in every country per the characteristics and cultural situation of that country. It must be admitted that although education managers play a key part in the quality of education, they face serious internal and external challenges in this regard, the most important of which is associated with their own professional capabilities.[10] On the other hand, the pace of change and the need for compatibility and reactivity to local conditions require managers to be equipped with new methods and skills to improve the quality of education.[11] What matters most is how the education managers and leaders respond to unique organizational problems or circumstances. The education environment is quite complex and one cannot predict whether a single procedure will solve all problems. When placed in a disturbed environment, managers must be able to read the situation and adopt the most suitable approach.[12] Thus, empowerment programs should not be static given the dynamic nature of the education environment, and having a model for dynamic empowerment of the education managers at universities appears to be imperative. A manager's work would be easy and there would be no challenge to planning if there was no change, since today would be the same as tomorrow and there would be no need to adjust to the environment since it did not change. Decision-making would also be extremely easy since the consequences of each decision would be highly predictable.[13]

Given the aforementioned reasons, it is evident that empowering medical science education managers at universities of medical sciences requires special attention, and designing a model for empowering them, by considering the conditions, characteristics, and specific context of the country's medical science system, appears necessary to improve the quality of education across medical science universities. Designing a model to empower the medical science education managers can specify the necessary qualifications and present an empowerment model based on the needs and qualifications to steer the future professional development plans compiled in the field of training managers and leaders in national medical science education. Moreover, improving the professional qualifications at the level of managers through dynamic empowerment can bring about better educational proposals in the medical science education system. This model can also be used as the foundation for a broad spectrum of management systems, such as the systems used to evaluate professional progress and educational

leadership incentives. The necessity of empowering professional managers at universities to handle their strategic tasks appears to be highlighted more than before. For this purpose, attention to indigenousness in training and recruiting education managers, identifying the manager's qualifications, and empowering them are among the requirements of universities and higher education institutions. Thus, we need a model(s) for empowering academic managers; so the present study was conducted to design a dynamic model for empowering medical science education managers.

Materials and Methods

Study design and setting

Model or modeling is a tool or method often used by researchers encompassing the graphic, mathematical, and verbal construction of the phenomenon.[14] The design and development of a model are considered as an effective research method and help the researchers correctly connect to reality. A model is a mental framework and abstraction used to analyze systems and phenomena.[15] The present study was conducted through modeling and seeking to develop a conceptual model for dynamic empowerment of medical science education managers through three micro-studies including the conceptual stage, the modeling, stage, and the validation stage. The research was conducted at Iran's university of medical sciences during 2020.

Study participants and sampling

Since there was no exact criterion for the sample size in qualitative research, sampling continued to the point of data saturation, and 25 medical science educational managers of Iranian universities of medical sciences were interviewed to obtain the collective opinions at this stage of the study. The round technique is a structured process used to collect and classify the existing knowledge seeking to reach consensus among a group of experts through distributing interviews between them and receiving controlled feedback and opinions. Eight respondents participated in this stage. Since the round technique is used to measure the group judgments made by experts to predict, make decisions, and reach agreements, and given that the criterion for selecting the respondents was not only sufficient knowledge on the topic but also the experience of the stakeholder group, purposive sampling was used at the stage of using the round technique.

Data collection tool and technique

The conceptual stage comprised of the study of texts on the concept of dynamic empowerment. The purpose of this stage was to discover the essence of the concept and its definitions through a close study of the respective texts. A total of 180 articles in the fields relating to dynamic capabilities, dynamic empowerment, and empowerment models were collected and studied, among which 20 articles that were most consistent with the research subject were selected, and variables underwent content analysis after the articles that did not meet the inclusion criteria and articles that did not have specific dates and author names or were irrelevant were excluded [Flowchart 1].

The second stage was the modeling stage in which the desired model was identified and further investigated based on an exploratory qualitative approach. Semi-structured interviews which are among the most common types of interviews used in qualitative approach were used at this stage. These interviews fall between the two ends of a spectrum being structured and unstructured interviews and are sometimes called in-depth interviews, in which all the respondents are asked similar questions but are free in terms of how they respond, and the researcher is responsible for coding and categorizing those responses.[16] Content analysis was then used to analyze the interviews and texts. Conventional content analysis was selected from the various types of content analysis to be used in the present study. This technique is used when there is no sufficient theoretical background or research regarding the research topics, and one needs to analyze the contents regarding the research topic to better understand a specific phenomenon. The evident advantage of conventional content analysis is obtaining direct and clear information from the studies without the imposition of pre-determined theories or categories.

The validation stage of the study was conducted to validate and simplify the components of the conceptual model for the dynamic empowerment of medical science education managers in universities of medical sciences. For this purpose, a two-round technique was used and the participants were asked to express their opinions regarding the components of the conceptual model in terms of relevance to the empowerment of medical science education managers and categorize them in the respective groups. Thus, after evaluating the opinions of experts in the four criteria of "clarity", "appropriateness", "necessity", and "feasibility" using the questionnaire made up of the components of the model, model evaluation was referred to the next stage and to the experts' meeting in cases where the median of each of the model components fell into the range of disagreement (1–3) or uncertain agreement (4–6). At this stage, the researchers in cases of disagreement and uncertain agreement carried out reevaluation and scoring so that consensus was reached in all model components. Eventually, the categories or subcategories for which consensus was reached were confirmed and the categories or subcategories that had failed to reach consensus were eliminated from the model.

Afterward, interactive impact analysis or cross-impact analysis was used to determine the relationships between

the components of the conceptual model. Cross-impact analysis is a method used to detect the interactions between the studied variables that grade the impact of each process on the other processes. In other words, cross-impact evaluation is a semi-quantitative method in which instead of the simple cause and effect relations, the interactive relations between various micro-systems are analyzed in a matrix. The information obtained through this method is an image of the interactive impacts between the variables and the processes. The obtained significance determines which variable is dependent and which is independent, which one is a driving force and which is driven by other forces. The cross-impact analysis method is extremely useful in the identification of key processes and variables. The feature of significance for variables is defined as having a strong relationship with the system, which is measured with the number and intensity of these relationships. This technique is implemented to analyze complex systems in which various elements are present and leave impact. In a session held to examine the cross impacts of components (themes) on one another, the table extracted from the previous session was presented. How the members had scored the impacts of each theme was explained at the beginning of the sessions. The members then gave scores of 0–3 to the impact of each of the theme rows on each of the theme columns, so that a score of 0 was assigned in cases where the theme in the row had no impact on the theme at the top of the column, and a score of 3 was assigned in cases the theme in the row had an extremely significant impact on the theme at the top of the column. The resulting scores were analyzed using MicMac software.

Ethical consideration

The project was found to be in accordance with the ethical principles and the national norms and standards for conducting medical research in Iran. And in the meeting dated 12/17/2019, the Vice Chancellor in Research Affairs- Medical University of Isfahan approved by the ethics committee with the ID IR.MUI.RESEARCH.

Diagram of study steps: A conceptual model for dynamic empowerment of medical science education managers [Flowchart 2].

Results

Participants in the present study were the director staff of the Ministry of Health and Medical Education and universities of medical sciences. The components of the model were finalized based on the results of the various stage of the present study. Therefore, this section presents the results of each micro-study separately, through which the extraction of themes that are the main components of the model is evident. The themes extracted through the first stage might not be as complete as the themes in the final stage, but the authors have presented all of the themes extracted in consecutive steps so that the process of obtaining the results is clear.

This stage of the study was conducted to seek answers to the question "What are the components of dynamic empowerment of medical science education managers based on the evidence in the respective texts?", and desk research was used to extract the concepts relevant to the studied subject. The samples analyzed at this stage of the study consisted of articles and books relevant to the studied subject. The goal was to summarize various studies or fragments of information to achieve a meaning resulting from all of the articles as a whole, a meaning that is beyond what could have been extracted from each of the articles separately. A new synthesis of the available knowledge occurred through the review of the texts.

Results of qualitative content analysis of the texts indicated that the theme of dynamic empowerment of education managers was made up of 12 categories and 20 subcategories identified from 58 main codes and 226 open codes. The tables regarding dynamic empowerment were
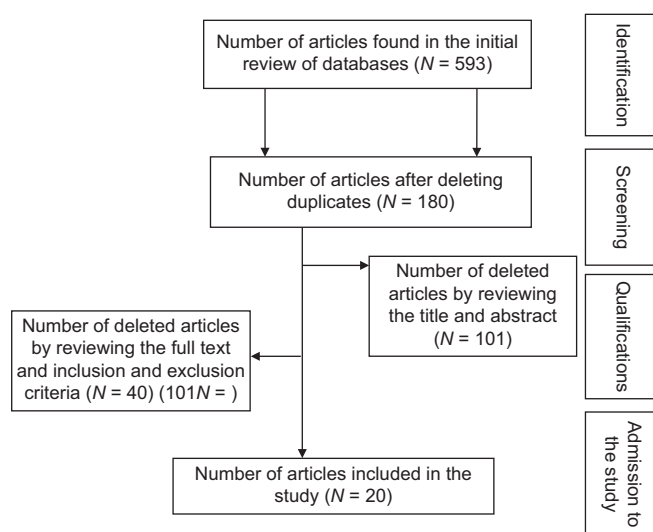
Flowchart 1: Comprehensive flow chart of studies
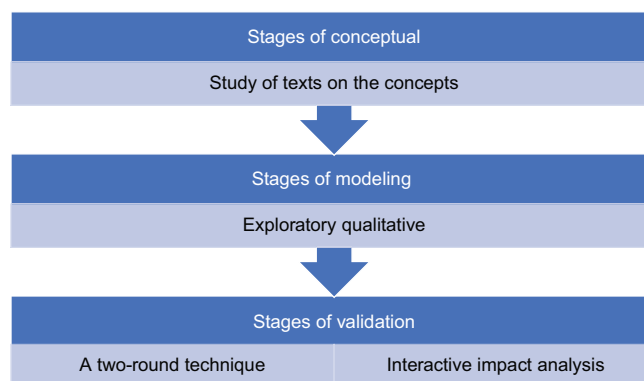
Flowchart 2: Conceptual stages, modeling and validation of the study

compiled and presented by the authors in an article in the form of categories, subcategories, and main codes.[17] The 12 categories of dynamic empowerment included skills and capabilities, individual eloquence, management capabilities, leadership capabilities, structural factors, executive factors, procedure factors, dynamic processes, educational factors, communicational factors, functional factors, and evaluation components. The extracted themes were used as a suitable theoretical framework for the succeeding stages of the study.

The second stage of the study sought to answer the question "What are the components of dynamic empowerment of medical science education managers according to the education managers at universities of medical sciences?" Results of analyzing the interviews revealed 723 initial codes that were compared to one another and reduced to 59 initial conceptual codes after reference to the interviews, revising the codes, and deleting the repetitive codes. Eventually, 21 subcategories and seven categories were identified for the dynamic empowerment of managers. Results of inductive content analysis of the interviews revealed seven dimensions for the dynamic empowerment of education managers at universities of medical sciences including the development of organizational factors, development of individual skills, management skills and factors, information and technology, educational leadership, and educational guidance. Each of the dimensions are explained further in the succeeding paragraphs. The table indicating the content analysis of the interviews in the form of categories, subcategories, and main codes was compiled by the authors and presented in a separate article.[18]

Educational guidance

Educational guidance is among the components of dynamic empowerment of medical science education managers. Participants stated that the medical science education system is alive; it grows and matures just like any other management system, so it requires care and is constantly and dynamically changing. We naturally face this phenomenon in the education system as well and require constant monitoring and comprehensive management to maintain the current quality. Of course, no quality remains persistent unless it is based on constant revision and change, and it must be noted that reform plans cannot be realized without real and effective support from senior managers. The manager's motivation to improve and better the education system and their knowledge of the respective processes can be the driving force for change. However, just as limited and implicit changes cannot expand without the motivation and support of the manager, the manager is unlikely to achieve these goals without the minimum support from the executive bodies of the educational system, particularly the faculty members

and students. The above cases are among the challenges of reforming the educational system, which sometimes undergoes many changes. This dimension of dynamic empowerment of managers is made up of the four subcategories of educational structure and regulations, medical education eloquence, educational eloquence, and educational skills.

Information and technology

Management is among the fields intensely influenced by information and technology. Results of the present study indicate that according to the participants, information and technology had the greatest impact on the academic community, particularly on education managers who regularly and persistently deal with information and technology since each of them has an important position in the organizational hierarchy and is considered as the most significant factor for the success of the whole organization. Any potential advantage of the use of the internet and information technology the university can take advantage of or develop and maintain depends on theie respective managers and their level of capabilities. This category of dynamic empowerment of managers is made up of the two subcategories of new technology development and educational technologies. These days, information is one of the most important power resources in every organization and accordingly, acquiring information, especially a central or strategic one can help organizations build a power base and influence others.[19]

Management skills and factors

Education managers are the main elements of the education system in universities, and leave tangible impacts on educational results and consequences through their actions. On the other hand, they are the main decision-makers of the education system as well and determine, through their knowledge and attitude, which services are provided to the learners in which forms and at what price. However, managers are often not trained for fulfilling their responsibilities in various divisions of the education system even though a large portion of the university educational expenditures is directly influenced by their decisions. Thus, the importance of manager empowerment programs that emphasize fostering the capabilities required to carry out the tasks that managers need to fulfill as managers and teachers after the empowerment course—capabilities that are beyond the educational skills often mastered by educational managers who are faculty members—is highlighted. This dimension of dynamic empowerment of managers is made up of the four subcategories of financial intelligence, improving human capital, planning, and authority delegation.

Environmental factors

Environmental factors refer to all of the intra-organizational

and extra-organizational conditions and factors that make up the main system, environment, and methods of the university. The environmental component is among the most important components on which the growth and survival of the university depend. Financial, psychological, and organizational support are considered among the environmental factors while static environment and the lack of effective interactions between the internal and external environments of the university are considered as environmental obstacles. This dimension of dynamic empowerment of managers is made up of the one subcategory of "support".

Educational leadership
Alongside other tasks of the managers, educational leadership is one of the essential and significant tasks which holds the key to a manager's success in steering the human resources they supervise. Participants believed that increasing the executive teams in universities and expanding their roles in the complex and changing structure of medical science universities highlighted the role of leadership in these teams, and that measures must be taken to ensure the position of the team and prevent its failure through empowerment. Thus, educational leadership is one of the main and imperative components in empowering education managers, and participants placed the greatest emphasis on this dimension out of all the other empowerment dimensions. This category of dynamic empowerment is made up of the subcategories of leadership, ethical eloquence, motivational management, communication skills, and teamwork guidance.

Development of individual skills
Developing individual skills refers to factors relating to the individual characteristics of education managers that must be considered in empowerment programs. According to the participants, individual skill empowerment courses help managers gain the skills they require to set goals and improve their self-confidence which enables them to deal with and solve problems more easily. This dimension of dynamic empowerment of managers is made up of four subcategories of problem-solving skills, self-regulation, innovation and creativity, and cognitive experiences.

Development of organizational factors
According to the participants, developing organizational factors consists of a wide range of processes and activities, all of which aim to improve the performance of the university. Development of organizational factors refers to the improvement of the capabilities and skills required by the education managers in the university they work in, and the capabilities and skills that help education managers to work better individually or in teams in the university

environment. This category of dynamic empowerment of managers is made up of the four subcategories of meritocracy, evaluation, exploration, and three-level empowerment.

In the next stage, the data from the first and second stages were matched. The similarities and differences in the universities were considered as the central axis of the research and the concepts associated with the components were searched for in the results obtained from the content analysis of the texts. Eventually, some of the categories and subcategories were eliminated or integrated. To confirm the adaptation of the components, a round scoring method was used to obtain the group opinions of the managers and collect their qualitative and quantitative opinions regarding the model's proposed components. The cases of disagreement between the participants were resolved by the researcher's insight in explaining each of the model components. After the participants' opinions were collected in the first round, the participants completed the questionnaires and gave their scores based on the round scoring standards and the desired changes were made. At the same time, participants scored the components of dynamic empowerment of medical science education managers obtained from qualitative interviews and the scoring table of the components of dynamic empowerment of medical science education managers using the round technique and were asked to express their opinions regarding each of the components and parts extracted from the texts. The final consensus reached is explained below:

1. Organizational–structural factors were categorized with the two components of structural factors and procedural-executive factors referring to the structure and executive procedures inside the organization.
2. Decision-making factors were categorized into two components of management factors and leadership factors.
3. Individual belief factors included the two components of individual personality factors and psychological factors.
4. Environmental factors include the organizational environment, the changes in technology, and intra-organizational support.
5. Educational factors include ethical eloquence and medical education eloquence.
6. Dynamic empowerment factors include the component of the manager's capabilities and refer to the preconditions for dynamic empowerment of medical science education managers.

Then, to build a conceptual model that encompassed the concepts extracted from the previous stages as its components, the model was extracted based on two series of the extracted qualitative results after consultation

with experts, and its validity was confirmed using the round model of the categories and subcategories. The cross-impact model was used to determine the approximate position of each of the components extracted in the previous stage [Table 1].

The data were then entered into the MicMac software, the output of which is demonstrated in the following figure. Figure 1 demonstrates the obtained matrix and its corresponding diagram in which arrows are used to demonstrate the influence of each group on the other and the degree of each influence has been written on top of each arrow in the form of a number. Eight weak-influence relations, one moderate-influence relation, and 10 high-influence relations were detected [Figure 2]. Components of dynamic empowerment in education principals of universities of medical sciences and dynamic empowerment components for medical university managers based on the content analysis of texts was shown in Tables 2 and 3.

Discussion

Given the newness of the model for dynamic empowerment of medical science education managers, the extraction of the concepts associated with the model was carried out in three micro-studies, including the study on the credible documents and the experiences of managers, experts, and professors of medical science education in the field of dynamic empowerment. Results of the micro-studies helped us reach a conclusion and a suitable method to extract and confirm the results. The final extracted concepts are discussed as follows.

Environmental factors
Results indicated that environmental factors include a set of extra-organizational and intra-organization factors that play a significant part in dynamic empowerment. The roles and support of managers were most emphasized among the intra-organizational factors; this support could lead to change in the interaction between the individuals in the organization and steer them toward dynamic empowerment. In the case of extra-organization factors, environmental changes and, particularly, technology was most emphasized. The nature of the technology in the present study mainly refers to the technologies in the field of education, learning, updating information, and regular connection to organizational transformations. Thus, dynamic empowerment refers to the integration and rearrangement of resources by a manager who is aware of the organization's information and changes at every given instant. These results are consistent with the results of Sharifi and Vahidinezhad, indicating that empowerment is influenced by teamwork and
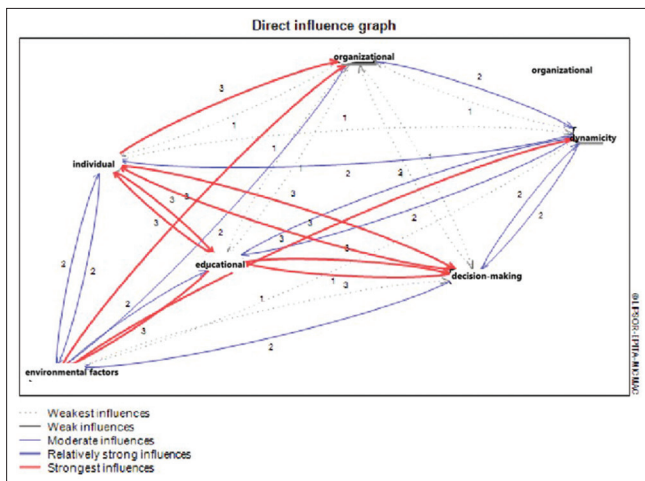

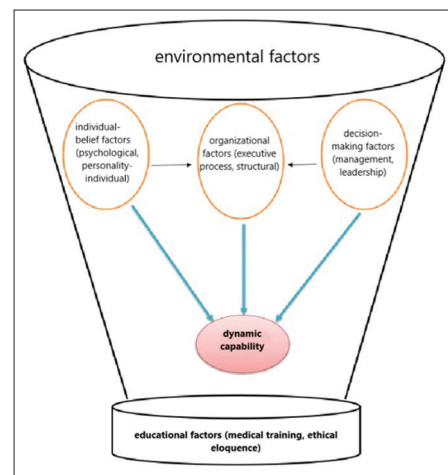**Figure 1:** The direct influence of components on each other

Figure 2: Diagram of the conceptual model of dynamic empowerment of medical science education managers

Table 1: The effectiveness of factors on each other in terms of participants in the meeting

Factor no.	Educational factors	Decision-making factors	Organizational factors	Belief factors	Dynamic capabilities	Environmental factors
Educational factors	0	3	3	3	2	1
Decision-making factors	3	0	3	1	3	2
Organizational factors	3	3	0	1	2	2
Belief factors	1	1	1	0	2	2
Dynamic capabilities	2	2	1	3	0	3
Environmental factors	2	2	2	1	1	0

Factors: 0 indicates no impact, 1 indicates weak impact, 2 indicates moderate impact, and 3 indicates high impact

Table 2: Dynamic empowerment components for medical university managers based on the content analysis of texts

Row	Category	Subcategory	Row	Category	Subcategory
1	Skills and capabilities	Effective skills -Ordinary capabilities	7	Human resources	Abilities of managers - The ability of the staff and the faculty- Student capabilities
2	Management components	Committed management - Trust-building management	8	Leadership components	Types of dynamic leadership - The role of dynamic leadership
3	Structural components	Structural adaptation - Structural flexibility	9	Executive components	Executive activities - Executive creativity
4	Procedural components	Procedural dimensions - Process dynamics	10	Dynamic processes	Perceptual processes of opportunities Renovation and rearrangement- Synchronization
5	Educational components	Educational capabilities	11	Communicative components	Communicative capabilities
6	Functional components	Functional capability	12	Evaluation components	Evaluation capabilities

Table 3: Components of dynamic empowerment in education principals of universities of medical sciences

Row	Category	Subcategory	Row	Category	Subcategory
1	Organizational factors development	Assessment Meritocracy Exploration Three-level empowerment	7	Information Technology	Development of modern technologies
2	Personal skills development	Problem-solving skill Creativity and innovation Self-regulation Cognitive experiences	8	Managerial Factors and Skills	Financial intelligence Planning Human capital boost Delegation of authority
3	Instructional Leadership	Moral maturity Communication skills Incentive management Teamwork leading Leadership	9	Environmental Factors	Support
4	Educational Guidance	Educational rules and structures Medical education development			

environmental changes such as technology.[20] The results also confirm the findings of Yazdkhasti and Arabloonereh[13] indicating that the fast growth in information and communication technology can influence empowerment processes.

Educational factors
Results of the present study revealed that educational factors include various educational skills, education methods, professional ethics, and education procedures that are implemented in the university. The educational factors in the present study included ethical eloquence and medical education eloquence. Ethical eloquence mostly refers to the ethical principles in education, so education ethics is an important component of the educational factors and can influence the learner's capabilities or the ethics of the education manager. However, it must be noted that education is an important tool in the dynamic empowerment of managers. One of the main management gaps in medical science education units is the lack of comprehensive training for managers and managers finding such training unnecessary. Such training will be more necessary and imperative than before to achieve dynamic empowerment given that most of the managers in medical science education are medical graduates and need to be trained for manegerial and organizational leadership. This result is consistent with the results of a study by Soleimani and Mazinani,[21] which indicated that educational activities can improve and reinforce social capital and with the results of a study by Nopriyanto *et al*.,[22] which indicated that holding educational workshops can make attitude changes and contribute to empowerment. Lin *et al*.[23] believed that education is a current through which managers gain the knowledge, skills, and attitudes suitable for a specific role.[23] In its more comprehensive meaning, knowledge means empowerment for both the individual and the organization. The individual who is recruited in the organization through great effort and expenditure must be able to lay a burden off the organization while moving along a path of growth that can lead to individual and organizational growth.

Decision-making factors
Our study revealed that the decision-making factors could be categories into management and leadership factors. Decision-making factors encompass all the processes of management, leadership style, making

decisions, delegating authority, and even social impact, which influences all types of decision-making, a portion of which can be influenced by leadership styles in the university at macro, medium, and executive levels. Therefore, decision-making does not necessarily refer to the official decision, and the impact of a lower-level manager in the university can sometimes influence decision-making. This result is consistent with the result of a study by Heaton and Teece,[24] which indicated that strategic decision-making could influence the emergence of strategic thinking and empowerment. The results are consistent with a study by Choi *et al*.[25] that suggested that leadership style influenced the type of empowerment and organizational changes.

Organizational factors

It was revealed in the present study that the organizational factors classified into structural and procedural-executive factors are required for the dynamic empowerment of managers. Among the structural factors, meritocracy, structural flexibility, and decision-making factors were the most important. Relation-based appointments with no regard for the individual's professional competencies and their experience are among the main weaknesses in universities of medical sciences and, on a broader level, in the medical science education system. This result is consistent with the results of a study by Heaton *et al*.[26] which suggesting that the perception of organizational support and flexible organizational structure contribute to empowerment.

Individual belief factors

According to the respondents, individual belief factors influence the dynamic empowerment of managers, which is an interesting result of the present study since these factors were deemed insignificant in most studies. This category consists of the two components of psychological and personal characteristic factors, which are essentially different according to the respondents. Results on the psychological factors indicated that the participants considered the psychological factors to include components indicating one's characteristics and skills including financial intelligence, innovation, problem-solving skills, self-regulation, cognitive experiences, effective skills, and communication skills. This component is more skill-oriented and associated with insight and experience. However, the personal characteristic factors are more concerned with one's personal skills and characteristics that can lead to effective communication with others or spark personal change. Thus, personal and characteristic factors include the three components of communication capabilities, exploration, and personal capabilities, indicating that these factors have a nature of capability for the person and are not mere traits, which means they can be improved. This result is consistent with the result of a study by Haghighi

molaei *et al*.[27] which suggested that religious beliefs left a positive impact on a manager's capabilities.

Dynamic capability

Last but not the least, dynamic capability was also identified as one of the main categories. This factor includes most of the manager's capabilities in the present study, so dynamic capabilities refer to the capabilities of a manager who can understand the current state of the university, develop a deep understanding of the available capacities and resources in the university, and be capable of redefining and reorganizing these resources based on the requirements resulting from technological changes, new educational methods, and organizational structure agility. Thus, a manager with dynamic capabilities is a conscious and skillful individual capable of effective communication and interaction and with a strong perception of the organizational procedures and the needs for change in the organization. The components of dynamic capability in the present study include renovation and reorganization, the manager's executive capabilities, planning, the managers, skill capabilities, and perceptual capabilities. This result is consistent with the results of a study by An *et al*.[28] which suggested that dynamic capability indicated the skill in reorganization and integration of the resources and perception of environmental opportunities. It also refers to a type of capability in organizational learning and, eventually, integration and coordination in resources and decisions.

The extracted model was obtained in the shape of a cone in which the environmental factors fell on top and educational factors were placed on the right side of the cone, surrounding the other factors inside the cone, and decision-making, individual belief, and organizational factors were placed at the heart of the cone. The relationship between these three factors inside the cone is that decision-making and individual belief factors influence organizational factors, whereas decision-making, organizational, and individual belief factors influence dynamic capabilities.

The model presented in this study aims to dynamically empower medical education managers as a new model in the field of medical sciences and was developed with a dynamic approach in medical universities. Additionally, this model can serve as the basis of a range of management systems used for evaluation of, professional development of and incentives for educational leadership. Due to the scope of work and implementation limitations of the research, It is suggested to prepare a chart of metrics and indicators of change in the components of the factors in the model and to check the performance of managers in different studies to what extent changes in the dynamic ability

of managers affect their performance and its effects on the university.

Conclusion

Results of the present study revealed that dynamic empowerment of the manager is a multifaceted and multidimensional approach, and all of the environmental, educational, decision-making, organizational, and individual belief factors must receive serious attention in the dynamic empowerment of the managers, and no dimension can be eliminated or disregarded. It is thus observed that the principle in dynamic empowerment is the interaction between various factors. If we strive for a successful dynamic empowerment program for education managers in universities leading to comprehensive changes, we must prepare the context for this change in these managers. It must be mentioned that as long as the organizational environment fails to encourage senior managers to attract the training of the day, no empowerment and cooperation will occur between the managers and employees.

Technological capacities such as communication and information systems should also be correctly used to expand virtual education through these technologies and provide managers with a type of real-time and constant education. This technology has many potential capabilities and can facilitate decision-making and cooperation in addition to education. It must also be mentioned that professional ethics is necessary and imperative in addition to the technologies. As long as the managers fail to institutionalize ethical principles in the organization, steer the organization towards ethical goals, and respect the rights of stakeholders and employees, dynamic empowerment of the managers would be meaningless since a capable manager is an ethical manager who safeguards the rights of employees and stakeholders.

Such an organization must be able to develop a flexible structure in the face of environmental changes. Decisions should also be made democratically and through participation so that the cooperation of all components of the organization can be gained. One could say that no significant change can be made in the traits, characteristics, and skills of the managers and implement change-oriented decisions in the organization as long as the participation capacities are not correctly used. Therefore, a leadership style seeking participation and a dynamic approach could contribute significantly in this regard. It should also be considered that the personal characteristics and skills of managers must be correctly understood before any training or change since many managers resist change which can thereby cause weaknesses in decision-making and empowerment processes.

Conflicts of interest

There are no conflicts of interest.

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