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Identifying and Prioritizing the Dimensions of Leading Professors Change in Babol University of Medical Sciences

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Purpose: Considering the role and importance of leading professors in improving and promoting the quality of education and the position of the university, the present study was conducted with the purpose of identifying and prioritizing the dimensions of leading professor's change in Babol University of Medical Sciences.

Methodology: This study in terms of purpose was applied and in terms of implementation method was mixed (qualitative and quantitative). The research population in the qualitative part was the universal experts of Babol University of Medical Sciences in the 2020-21 academic years with number of 20 people, which according to the principle of theoretical saturation number of 10 people of them were selected as a sample by purposive sampling. The research population in the quantitative part was the faculty members of Babol University of Medical Sciences in the 2020-21 academic years with number of 348 people, which according to Cochran's formula number of 183 people of them were selected as a sample by stratified sampling method with scientific rank. The instrument of the present study in the qualitative part was a semi-structured interview and in the quantitative part was a researcher-made questionnaire of leading professors (80 questions), whose psychometric indices were confirmed. The qualitative part data were analyzed by coding method in MAXQDA-2018 software and the quantitative part data were analyzed by exploratory factor analysis in SPSS-23 software.

Findings: The findings of the qualitative part showed that the leading professors had 80 indicators in 12 components and 3 dimensions of educational, research and individual. The findings of the quantitative part showed that the factor load of all three dimensions of educational (and its 5 components including teaching skills, educational technology, management of education, evaluation skills and observance of educational rules), research (and its 2 components including knowledge research and research ethics) and individual (and its 5 components including physical characteristics, professional ethics, honesty, creativity and discipline) were obtained higher than 0.70, the average variance extracted of all were obtained higher than 0.80 and the reliability of Cronbach's alpha and combination of all were obtained higher than 0.90. Other findings showed that the dimensions of educational, individual and research had more factor load, respectively, and in the educational dimension the factor load of teaching skills component, in the research dimension the factor load of research ethics component and in the individual dimension the factor load of honesty was more than other components.

Conclusion: According to the results of the present study, in order to create and improve the leading professors in the university, should be upgraded the dimensions of educational, individual and research and the components with more factors load in each dimension, respectively.

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1. Introduction

One of the most important management resources in the health system is the existence of efficient, competent and capable human resources, and in 2006, the World Health Organization introduced human resources as an asset for today and the future of organizations, and in this regard, strengthening and training human resources and developing a suitable program With the needs of society, it requires cooperation between different parts of the educational system and health service providers (Heidari, Khademi, Khatirnamani, Rafiei, Mirkarimi, Charkazi & et al, 2021). Management in every organization needs to respond to changes and every organization needs human resources to deal with constant changes and developments and achieve specific efforts and create a competitive advantage, so organizations are dependent on human resources and this power determines the success and failure of the organization (Aviso, Chiu, Demeterio, Lucas, Tseng & Tan, 2019). Human power is the most important and main element of any organization, including a university, and having efficient, committed, loyal and organizationally owned human resources is considered a very important capital for organizations due to the rapid changes and developments in today's world (Singsungnoen, Wannapiroon & Nilsook, 2021). . Undoubtedly, increasing the performance of the university requires increasing the productivity of the faculty members as the forces and human capital of the university. Faculty members and professors are specialists who are responsible for teaching and spreading science and knowledge in the university, and the quality and development of knowledge depends to a large extent on how they work (Adabi, Hajiha & Khorshidi, 2021).

The university is the main institution for the development of specialized human resources and resources in the path of achieving sustainable development, which plays an important role in sustainable development and is the source of modern researches, the acquisition of modern knowledge and its application in various life issues (Mohabbat, Fathi Vajargah & Jaafari, 2019). Improving the educational and research quality of universities is one of the important concerns of university systems that universities always strive to achieve. Today, university education is considered the highest level of education in any country, and raising the quality of education is one of the measures that universities make a lot of effort to achieve. In order to increase the quality of education in universities, in addition to physical facilities such as suitable educational space, educational aids, well-equipped and specialized laboratories, etc., another important factor is needed, which is the presence of leading and expert professors (Esmaeili, Hozni, Mosazadeh & Zavareh, 2017).

Universities are faced with many opportunities, challenges and threats for organizational transformation and improvement of educational and research quality, some of these challenges include increasing expectations about the quality of higher education programs, linking programs with social, economic and technological changes and developments, changes in student populations and The changing paradigm is about efficient and creative teaching and learning that challenge the traditional methods of academic societies. In such a context, the necessity of continuous training of professors for the university's dynamism is revealed, and for this purpose, programs called development programs with the aim of improving professors are developed and implemented. In such programs, emphasis is placed on the positions that will be assigned to teachers in the future and prepare them to acquire more proficiency (Hejazi, Pardakhtchi & ShahPasand, 2009).

Today, professors, as valuable assets of any society, play an important, sensitive, fundamental and decisive role in the training of specialist forces, and ultimately the result of their efforts will lead to the growth and development of human societies (Rangriz, Naveh Ebrahim, Arasteh & Soltanieh, 2017). Professors are the heart of the university and are one of the main and important factors of the educational structure, whose ability increases the performance of higher education and improves its quality (Galindo-Dominguez, Pegalajar & Uriarte, 2020). Professors are the biggest resources available in colleges and universities and are considered to be expert human resources who are responsible for education and dissemination of science and knowledge. The quality and development of knowledge depends to a large extent on the performance of professors, and they are considered an important criterion for determining the credibility and quality of education. A rational investment in the field of improving professors enables professors to perform better in the field of education

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and research, and more capable professors cause students to acquire more knowledge, expertise, and skills and perform better (Ahmadi, Gholami & Azizi, 2013). Capable and committed faculty members and professors are more committed to organizational goals and values and are more active in teaching and role-playing in the university (Falola, Adeniji, Osibanjo, Oludayo & Salau, 2018).

Leading professors are professors who create spaces where students gain insight, recognize and develop their potential talents, and take steps towards their personal and professional abilities in the best way (Bahoo Toroodi, Yousefi Saidabadi & Saffarian Hamedani, 2020). Professors play an important role in teaching and learning processes, and they can lead students to higher goals by combining various elements in the educational system. Therefore, the absence of experienced and progressive professors will lead to the sterility of any measure to improve the quality of education. As a result, the quality of universities depends on the quality and scientific ability of professors, and it is impossible for universities to provide quality education and research without having professional professors equipped with science and knowledge, professional ability, commitment, and real motivation (Singh, Pai, Sinha, Kaur, Soe & Barua, 2013). The presence of leading professors with scientific and moral qualifications is one of the fundamental factors in the quality of educational systems, and professors improve students' learning by using their knowledge, using texts, teaching skills, and creating a suitable environment. In addition, leading professors play an important role in improving the quantity and quality of the education system, and such professors can improve the university's rank and gain a competitive advantage for their university (Mousavi Zavardehi, Hosseini Dronkola & Shojaei, 2021).

Leading professors have an important role in the performance and effectiveness of the university, but very little research has been done about them, and the results of the most important research related to it are reported below. Bahoo Toroodi & et al (2020) conducted a research entitled the role of leading professors and responsive education on the development of the third generation university in order to present the model of Mazandaran University of Medical Sciences. They concluded that leading professors and responsive teaching played a positive and meaningful role on the development of the third generation university and the leading professors with a higher standard factor had a greater role in the development of the third university than responsive education. They concluded that a new perspective can be created in the direction of changing the general policies of the university administrators in the direction of reviewing the programs of empowering professors with a focus on leading professors.

Miguel, Moreira, Alves, Campos, Glassey, Schaer & et al (2019) identified the dimensions and categories of professors' effective teaching, including professors' personality characteristics, professors' scientific characteristics, teaching skills, and classroom management.

Esmaeili & et al (2017) came to the conclusion that the characteristics of a good professor, according to dental students of Gilan University of Medical Sciences, included knowledge, personality, communication, teaching method, evaluation and ethics, respectively. Bonakdari, Mehran, Mahroozadeh & Hashemi (2016) researched the characteristics of a competent professor including three cognitive dimensions (with the components of content mastery, organized and clear content, being up-to-date, research ability, initiative and creativity, combination of theory and practice, and having experience). Behavioral (with eloquent components of expression, positive interaction with students, mobility and enthusiasm, predictability, flexibility, encouraging and persuading students and fair evaluation) and emotional (warmth and intimacy, interest in specialized field, commitment and responsibility, high expectations from students, optimism) and positive thinking) were introduced.

Shahsavani, Faraj Elahi & Zarif Sanaiey (2014) in a research concluded that students introduced the characteristics of successful professors of the University of Medical Sciences, including scholarship, commitment, electronic skills and teaching methods, and stated that all the characteristics had an effective role in explaining the success of the professors. Wan, Howard & Alan (2010) concluded that the characteristics of a good teacher include the ability to communicate, mastery of the subject matter, classroom management skills, professional skills and having a positive personality. The quality of education and research

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in universities of medical sciences is far beyond that of non-medical universities due to the role of its graduates in maintaining and improving human health. Therefore, in universities of medical sciences, due to the sensitivity and importance of society's health and dealing with human life, it is very important for professors to be leaders, so it is very important to pay attention to the quantitative and qualitative aspects of leading professors in universities of medical sciences. Because better services and education should be provided to students so that in the near future, students will take action to maintain and improve the health of the society and play a role in the growth and development of their health. For this purpose, the most important factor that can be effective in achieving this important goal in medical sciences universities is having leading professors. Because the leading professors or expert and qualified professors can deliver qualified graduates to the society to meet the needs related to the health of the society. Another important point about the current research is the lack of research on identifying the dimensions of leading professors and their prioritization, which can help the officials and planners of medical sciences universities in designing programs to create and strengthen leading professors and create a competitive advantage for universities. Considering the role and importance of the leading professors in improving and improving the quality of education and the position of the university, the present study was conducted with the aim of identifying and prioritizing the dimensions of the change of the leading professors in Babol University of Medical Sciences.

2. Methodology

This study was applied in terms of purpose and mixed (qualitative and quantitative) in terms of execution method. Qualitative part: The research community in the qualitative part of academic experts of Babol University of Medical Sciences in the academic year of 2020-21 was 20 people, according to the principle of theoretical saturation, 10 of them were selected as a sample using the purposeful sampling method. In the purposeful sampling method, people are selected according to the criteria that can contribute the most to the research in order to obtain appropriate information. These people were selected after reviewing the criteria for inclusion in the study, including having a specialized doctorate degree, teaching experience of more than 10 years, and having an academic rank of associate professor or higher. The research tool in the qualitative part was a semi-structured interview, the questions of which were designed with the help of supervisors and advisors and based on theoretical foundations, including library resources, articles and books related to leading professors. The interviews were conducted individually and the average interview time with each person was about 30 minutes, and during the interview the key points of each interview were noted by the interviewer. In order to reduce the impact of the interview method in providing information in all interviews, the first researcher of this study played the role of the interviewer. The validity of the interviews was confirmed by the triangulation method and their reliability was obtained by the agreement coefficient method between two coders at 0.84.

Quantitative part: The research population in the quantitative part of Babol University of Medical Sciences in the academic year 2020-21 was 348 people, according to Cochran's formula, 183 of them were selected as a sample by stratified sampling method with respect to scientific rank. In the stratified random sampling method, the ratio of faculty members of Babol University of Medical Sciences in the society was first calculated, and then according to the sample size, 183 people were selected in the same proportion from each class according to the scientific rank of the faculty members. The research tool in the quantitative part was a researcher-made questionnaire of leading professors with 80 questions. The questions were designed according to the review of theoretical foundations and interviews with experts in 12 components and three educational, research and individual dimensions. Each of the questions is designed and adjusted with a 5-point Likert scale of very little (score 1), low (score 2), medium (score 3), high (score 4) and very high (score 5). Content validity for all items was obtained by 10 university experts above 0.60, which indicates their appropriate validity. Also, the reliability of the whole tool was obtained with Cronbach's alpha and composite methods above 0.90, which indicated their favorable reliability.

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The process of conducting the research was such that after reviewing the theoretical foundations and designing questions with the help of supervisors and consultants to conduct interviews with university experts, the research community was determined in the qualitative section and a number of them were selected as samples. For this purpose, interviews with experts continued until the research reached saturation, and in this research, after interviewing the eighth person, the research reached saturation, but the research was conducted with one of the academic experts. In the next step, using the theoretical foundations and the results of interviews with academic experts, a researcher-made questionnaire of leading professors was prepared, and then the list of faculty members of Babol University of Medical Sciences and their statistics by academic rank was prepared, and according to the sample size of 183 people, the same proportion as available in The community was sampled from among them. For the samples, the goals and ethical considerations of the research were stated and they were asked to answer the questions of the researcher-made questionnaire of the leading professors with the utmost accuracy. It should be noted that at the end of the interview, the interviewees or academic experts of Babol University of Medical Sciences were praised and thanked at the end of completing the questionnaire of the leading professors, the completers or faculty members of Babol University of Medical Sciences and the data were entered into the computer for analysis.
In the present study, which had two qualitative and quantitative parts, the data of the qualitative part were analyzed with the open, axial and selective coding method in the MAXQDA software version 2018, and the data of the quantitative part were analyzed with the exploratory factor analysis method in the SPSS-23 version 23 software.

3. Findings

The sample of the qualitative part was 10 people and the sample of the quantitative part was 183 people, whose number and percentage of demographic information are presented in Table 1.

Table1. The number and percentage of demographic information of qualitative and quantitative samples in Babol University of Medical Sciences

Variable	level	Qualitative section		Quantitative section	
		Number	Percentage	Number	Percentage
gender	Man	7	70٪	112	61/20٪
	Female	3	30٪	71	38/80٪
Age	Less than 40 years	1	10٪	9	4/92٪
	40-50 years	4	40٪	76	41/53٪
	Above 50 years	5	50٪	98	53/55٪
work experience	11-15 years	2	20٪	18	9/84٪
	16-20 years	5	50٪	76	41/53٪
	Above 20 years	3	30٪	89	48/63٪
Academic Rank	the coach	0	0٪	10	5/46٪
	Assistant Professor	0	0٪	116	63/39٪
	Associate Professor	8	80٪	37	20/22٪
	Professor	2	20٪	20	10/93٪

According to the results of Table 1, most of the samples of both the qualitative and quantitative sections were male and over 50 years old, but the work experience of most of the samples of the qualitative section was 16-20 years and the quantitative section was more than 20 years, and the scientific rank of most of the samples of the qualitative section was associate professor and He was an assistant professor. The results of open, central and selective coding to identify the variable dimensions of leading professors in Babol University of Medical Sciences were presented in Table 2.

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Table2. Coding results to identify variable dimensions of leading professors in Babol University of Medical Sciences

dimension	Component	Index number
educational	5 components	35
	Teaching skills	12
	Educational Technology	5
	Education management	6
	Evaluation skills	7
	Compliance with educational rules	5
research	2 components	15
	scholarship	6
	Research ethics	9
Individual	5 components	30
	Physical features	4
	Ethics	8
	Honesty	6
	Being creative	6
	Ordinance	6

According to the results of Table 2, leading professors had 80 indicators in 12 components and 3 educational, research and individual dimensions; So that the educational dimension has 5 components of teaching skills, educational technology, education management, evaluation skills and compliance with educational rules, the research dimension has 2 components of scholarship and research ethics, and the individual dimension has 5 components of appearance characteristics, professional ethics, honesty, creativity and discipline. The results of identifying variable dimensions of leading professors in Babol University of Medical Sciences are presented in Table 3.

Table3. The results of identifying variable dimensions of leading professors at Babol University of Medical Sciences

dimension	Component	Average	standard deviation	factor load	AVE	Cronbach's alpha reliability	Composite reliability
educational research	5 components	3/57	0/52	0/96	0/84	0/98	0/98
	Teaching skills	3/56	0/69	0/91	0/90	0/98	0/98
	Educational Technology	3/61	0/80	0/83	0/82	0/94	0/95
	Education management	3/62	0/86	0/75	0/76	0/99	0/99
	Evaluation skills	3/62	0/59	0/86	0/87	0/95	0/96
	Compliance with educational rules	3/45	0/65	0/77	0/84	0/98	0/99
next	2 components	3/47	0/60	0/89	0/92	0/99	0/99
	scholarship	3/41	0/70	0/79	0/81	0/99	0/99
	Research ethics	3/52	0/79	0/92	0/84	0/99	0/99
educational research	5 components	3/66	0/56	0/92	0/86	0/98	0/99
	Physical features	3/97	0/82	0/76	0/81	0/97	0/98
	Ethics	3/74	0/89	0/82	0/89	0/99	0/99
	Honesty	3/61	0/74	0/82	0/84	0/96	0/96
	Being creative	3/50	0/67	0/79	0/88	0/97	0/97
	discipline	3/46	0/63	0/81	0/84	0/96	0/97

According to the results of Table 3, the factor load of all three educational dimensions (and its 5 components including teaching skills, educational technology, education management, evaluation skills and compliance with educational rules), research (and its 2 components including scholarship and research ethics) and individual (and its 5 components, including appearance characteristics, professional ethics, honesty,

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creativity, and discipline) were higher than 0.70, the average extracted variance of all of them was higher than 0.80, and the Cronbach's alpha and combined reliability of all of them was higher than 0.90. The ranking results of leading professors in Babol University of Medical Sciences were presented in Table 4.

Table4. Ranking results of leading professors in Babol University of Medical Sciences

dimension	factor load	rank	Component	factor load	rank
educational	0/96	First	Teaching skills	0/91	First
			Educational Technology	0/83	Third
			Education management	0/75	the fifth
			Evaluation skills	0/86	Second
			Compliance with educational rules	0/77	Fourth
research	0/89	Third	scholarship	0/79	Second
			Research ethics	0/92	First
Individual	0/92	Second	Physical features	0/76	the fifth
			Ethics	0/82	Second
			Honesty	0/83	First
			Being creative	0/79	Fourth
			Ordinance	0/81	Third

According to the results of Table 4, the educational, individual and research dimensions were ranked higher, and in the educational dimension, the components of teaching skills, evaluation skills, educational technology, compliance with educational laws and education management, in the research dimension, the components of research ethics and research knowledge, respectively, and in In the individual dimension, according to the components of honesty, professional ethics, discipline, creativity, and appearance characteristics, they were ranked higher.

4. Conclusion

Today, universities play an important role in improving the quality of education, and the most important resources available in universities, i.e. professors, can play an effective role in creating a competitive advantage and improving the quality of the higher education system. Are the future, therefore, the present study was conducted with the aim of identifying and prioritizing the dimensions of change of leading professors in Babol University of Medical Sciences.The findings of the qualitative part of this study show that leading professors have 80 indicators in 12 components and 3 educational dimensions (with 5 components of teaching skills, educational technology, education management, evaluation skills and compliance with educational rules), research (with 2 components of scholarship and research ethics) and individual (with 5 components of appearance, professional ethics, honesty, creativity and discipline). Also, the findings of the quantitative part of the present study show that in the structure of leading professors, the factor load of all three educational (and its 5 components), research (and its 2 components) and individual (and its 5 components) dimensions are higher than 0.70, the average variance extracted All dimensions and components were higher than 0.80 and Cronbach's alpha and combined reliability of all dimensions and components were higher than 0.90. In addition, the educational, individual and research dimensions were ranked higher, and in the educational dimension, the components of teaching skills, evaluation skills, educational technology, compliance with educational laws and education management, in the research dimension, in the order of the components of research ethics and research knowledge, and in the dimension Individuals were ranked higher in the components of honesty, professional ethics, discipline, creativity, and appearance characteristics, respectively. Very few researches had been conducted on leading professors and no research was found on prioritizing its dimensions, but qualitative researches on the dimensions of leading, successful, competent and effective professors have been conducted, and the results of the present study are in line with their results,

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including the researches of Bahoo Toroodi & et al (2020). , Miguel et al (2019), Esmaeili & et al (2017), Bonakdari et al (2016), Shahsavani et al (2014), Wan et al (2010).

In describing the findings of the present study, it can be said that the leading professors had three educational, research and personal dimensions. Therefore, in order to have leading professors, it is necessary to strengthen the professors in the three fields of education, research, and individual. For this purpose, in the educational dimension, strategies such as teaching and improving teaching skills, improving the use of educational technologies, strengthening education management, and training to improve evaluation skills can be used. and compliance with educational rules in a flexible and non-discriminatory manner among students, in the research dimension, indicators such as teaching research knowledge and evaluating professors based on it, and observing research ethics and carrying out ethical considerations during research, and in the individual dimension, solutions such as improving external characteristics Emphasis on compliance with professional ethics, honesty, creative training, innovation and discipline, and compliance with laws.

Also, in describing the findings of the present study, it can be said that the educational dimension was ranked first and the research dimension was ranked last or third. Therefore, what plays a greater role in determining the leading professors is, firstly, their educational dimension, respectively, with the components of teaching skills, evaluation skills, educational technology, compliance with educational laws, and education management, and thirdly, their research dimension, respectively, with the components of research ethics and research knowledge. Have a more effective role. In the second degree, that is, after the educational dimension and before the research dimension, the individual dimension is important, and in the mentioned dimension, the components of honesty, professional ethics, discipline, creativity and appearance are more important. In addition, the educational dimension including the five mentioned components play a more important role in the progress and success of professors than the individual and research dimensions. Therefore, the professors have the technique of expression and the use of non-verbal skills, present new and up-to-date scientific and lesson materials in an organized and clear manner, scientific mastery over the course materials, mastery over the content, the ability to choose and organize the content, have eloquent expression and skill in conveying the content. curriculum, preparation and preparation of appropriate educational lesson plan, skill in transferring lesson concepts to students, familiarity and use of active teaching models and methods according to the content of each lesson and appropriate presentation of the lesson volume according to the educational goals are among the educational factors that are leading Teachers play an important role. Because having teaching skills is one of the most important skills of university professors, therefore, the greater impact of the educational aspect and the component of teaching skills seem logical.

The results of this research indicated the existence of twelve components in the three dimensions of education, research and individual, which are respectively reported in three paragraphs below the practical suggestions of each of the three dimensions. In the educational aspect, it is suggested that university professors use suitable educational software for teaching subjects, get familiar with new teaching methods and patterns and use them in teaching. University professors should have complete mastery of course materials and subjects, encourage students to participate in discussions related to the classroom and outside the classroom, have sufficient knowledge of educational laws and manage education in an appropriate manner. The university officials should hold training courses or retraining methods and teaching models for the professors. In the research dimension, it is suggested that university professors pay special attention to ethical issues in the field of research, adhere to professional rules and regulations in conducting research and fully comply with them, and have appropriate, practical and up-to-date public information. In the personal dimension, it is suggested that university professors should be honest in presenting scientific and research reports, strengthen creativity and questioning spirit in students and be a role model for them, while having appropriate features and appearance and observing professional ethics, be disciplined and without discrimination. Follow the rules among students. In addition to them, it is generally suggested that the administrators and officials of the university hold educational workshops for the professors to improve the technique of expression and diverse,

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up-to-date teaching methods based on virtual methods so that they can present scientific materials and content to students in the classrooms in an appropriate manner.

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