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Provision of a Knowledge Management Model for the Branches of the Islamic Azad University of West Azerbaijan Province

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Abstract

Purpose: this study was conducted aimed to provide a knowledge management model for the branches of the Islamic Azad University of West Azerbaijan Province.

Methodology: The present study was applied in terms of aim and quantitatively correlated in terms of implementation method. The study population was 654 faculty members of the Islamic Azad University of West Azerbaijan Province during the academic years 2020-21. The sample size was estimated n = 243 based on Cochran's formula who were selected by cluster sampling method with respect to gender ratio and scientific rank. The data were collected by a researcher-made questionnaire (74 items), content validity of which was confirmed by experts and its reliability was calculated by Cronbach's alpha of 0.90. Exploratory factor analysis and structural equation modeling by SPSS-23 and LISREL-8.8 software were used for data analysis.

Findings: The results of factor analysis showed that knowledge management with eight factors of infrastructure and information technology, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and training, knowledge leadership, and organizational management and culture explained 74% of the total variance of knowledge management. The results of structural equation modeling showed that the knowledge management model had a good fit and the eight factors had a direct and significant effect on knowledge management ($P < 0.05$).

Conclusion: According to the study results, planning to improve knowledge management through factors o infrastructure and information technology factors, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and training, knowledge leadership, and organizational management and culture is essential. For this purpose, the use of training workshops can be effective.

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1. Introduction

Higher education as a center of science, thinking and innovation has important tasks and responsibilities such as development and promotion of science and training and provision of specialized human resources required by the country. This educational system is the center of development, the engine of change in society and the only center of human resource training that can accelerate the growing movement of society by having new ideas and thoughts (Nemati, Mohammadi and Raeisson, 2015). Today, universities should consider knowledge management as part of their mission and strategy. Because this construct on the one hand by attracting new knowledge into the system and on the other hand with knowledge management can be an important factor for knowledge-based provision and development (Di Vaio, et al, 2021). The performance of university faculty members, like other professionals, is subject to knowledge management, and in order to be able to survive under today's changing conditions, they should use knowledge management in a proper way to keep up with their missions in addition to comply with today's changing conditions. Knowledge management is a relatively new term that has found an important place in management theory and practice and this construct is used to describe the processes through which organizations produce and organize knowledge to achieve competitive advantage and make it available to all employees of the organization (Abbas and Sagsan, 2019). Knowledge has two explicit and implicit parts. The explicit knowledge means knowledge that can be documented and provided to others, but implicit knowledge means knowledge that is not easily seen and expressed and the person acquires it through experience and reflects his beliefs and values (Mikovic, et al, 2020).

Knowledge management is one of the important and valuable approaches that leading organizations, by establishing it while maintaining their technical expertise, prevent knowledge loss due to retirement, downsizing or dismissal of employees (Rabhi, et al, 2021). In addition to information management, this construct also includes facilitating the provision of new knowledge and managing methods of knowledge sharing and use (Tongsamsi and Tongsamsi, 2017). Military knowledge management is to help organizations make better, faster, and more appropriate decisions through the acquisition, analysis, use, and reuse of knowledge (Martins, et al, 2019). In other words, knowledge management includes four general processes of knowledge acquisition, knowledge storage, knowledge distribution and knowledge use. Knowledge acquisition is the process of producing and presenting it in a new way. Knowledge storage includes all activities leading to the survival and keeping of knowledge. Knowledge distribution is the process of disseminating and promoting knowledge even outside the organization. Knowledge use is the knowledge application process in a practical way for products, services and processes of organizations (Antunes and Pinheiro, 2020). Knowledge management involves managerial efforts to facilitate the processes of knowledge acquisition, storage, distribution and use by individuals and groups, and establishes procedures for identifying, evaluating, storing, and using knowledge to meet organizational needs and goals (Centobelli, Cerchione and Esposito, 2018).

Knowledge management in educational systems means a systematic and organized process of information creation and dissemination, selection, refinement and expansion of explicit and implicit knowledge to create value that strengthens the teaching, training and learning settings (Muthuveloo, Shanmugam and Teoh, 2017). This structure represents the activities and processes of the organization that improve the efficiency of knowledge resources and the effectiveness and performance of the organization and allow organizations to plan and organize effectively and give employees strength and motivation (Koc, Kurt and Aklylk, 2019). Knowledge management should help the system to achieve successful business goals and strategies using its assets. This concept is a continuous process that begins with planning and goal setting and along the way with continuous evaluations and the use of predetermined goals, identifies shortcomings and makes the necessary corrections and removes barriers and limitations (Ode and Ayavoo, 2020).

Although several studies have been conducted on the knowledge management model in some organizations, no such study was found in the branches of the Islamic Azad University and their faculty

members. For example, the study results of Karimi, Heydarinejhad and Mehralizadeh (2020) showed that knowledge management-based succession management includes the necessary requirements and contexts, establishing a knowledge management system, identifying incentives, appointing a succession committee, identifying key positions, determining inclusion criteria of succession and identifying, selecting and empowering candidates. The category of establishing a knowledge management system had four concepts of knowledge acquisition and creation, knowledge documentation, knowledge transfer and experiences. Tarhani (2020) in s study concluded that the factors involved in the implementation of knowledge management system in the defense industry included organizational structure, strategy, consequences, technology, employees, processes and leadership. In another study, Sadri (2019) introduced the effective factors on establishing knowledge management in Iranian universities, including management, organizational culture and infrastructure (human resources and equipment). Also, the study results of Dehghani, et al (2019) showed that the factors affecting the establishment of knowledge management effectiveness included human resources (knowledge-based approach in recruitment and application, knowledge culture, teamwork, empowerment with knowledge-based approach and knowledge motivating stimuli), structure (knowledge-based organizational communication, organizational structure and knowledge management processes), infrastructure (hardware, software, network, knowledge repositories, and security policy in knowledge management) and strategy (implicit to implicit socialization, implicit to explicit externalization, explicit to explicit combination and explicit to implicit internalization). Ronaghi, Zeinodinzadeh and Alambeladi (2019) in a study concluded that the factors affecting the implementation of knowledge management included three organizational (with three concepts of knowledge management processes, organizational structure, technology and management), individual (with two concepts of personality and trust factors) and environmental (with two competitive and socio-cultural concepts) categories. In another study, Zouari and Dakhli (2018) reported that the four dimensions of technology, human resources, process and context were among the factors affecting knowledge management. In addition, the study results of Khalaj and Zareiyan (2016) showed that factors of culture, structure, and human resource motivation and information technology were effective on the implementation of knowledge management in AJA University of Medical Sciences. Haq and Anwar (2016) in a study introduced the factors affecting the implementation of knowledge management, including incentive and reward systems, organizational structure, social relations, organizational culture, information platform and the support of senior managers. In another study, Ezzati, Mirkamali and Sadeqi (2016) reported that the optimal model of knowledge management in the university according to the Vision 1404 document included components of human resources, training, knowledge management processes, external setting, technology, financial resources, leadership and management, structure, strategy and goals, culture and intellectual capital. In another study, Sedighi, VanSplunter, Zand and Brazier (2015) introduced the factors affecting knowledge management including organizational culture, human and financial resources, strategy and leadership, structures and procedures, setting, knowledge management process, macro-setting, technology and infrastructure.

For knowledge management establishment, first it is necessary to identify the components and factors affecting it in any organization, because its establishment without accurate and correct identification of basic requirements is likely to fail. Therefore, while recognizing the factors affecting knowledge management and the extent of their effect, it is necessary to design and implement programs based on them to establish knowledge management. This questions what factors are effective on knowledge management in any organization? is an important question that has preoccupied management researchers. Although several studies have been conducted on the knowledge management model and this model has been designed for many organizations, one of the gaps is the lack of such a model in the branches of the Islamic Azad University and its faculty members. The present study can lead to the development of knowledge of educational sciences in the field of knowledge management models in educational fields and especially in faculty members. As a result, the researchers of the present study, aimed to provide a knowledge management model in the branches

of the Islamic Azad University of West Azerbaijan Province, seek to answer the question what is the knowledge management model in the branches of the Islamic Azad University of West Azerbaijan Province?

2. Methodology

The present study was applied in terms of aim and quantitatively correlated in terms of implementation method. The study population was 654 faculty members of the Islamic Azad University of West Azerbaijan Province during the academic years 2020-2021. The sample size was estimated n = 243 based on Cochran's formula of who were selected by cluster sampling method with respect to gender ratio and scientific rank. In this sampling method, first, three branches (Urmia, Khoy and Mahabad) were randomly selected from all branches of the Islamic Azad University of West Azerbaijan Province, and then the ratio of faculty members of the selected branches was calculated based on gender and academic rank. Finally, the samples were randomly selected from different study groups according to gender and academic rank ratios and all faculty members of the selected groups were selected as the sample.

In order to conduct this study, first the list of university branches of West Azerbaijan Province and the statistics of their faculty members by gender and academic rank were prepared and then three university branches were selected as the sample. Then, coordination was made with the officials of the selected university branches to conduct this study, and the importance and necessity of this study were explained, ethical considerations were observed for the selected faculty members, and they were asked to respond carefully to the research tools. After completing the research tool, the researcher, while reviewing the faculty members' responses to all the items, appreciated them and thus the data were prepared to enter the computer.

In addition to the demographic information form, a researcher-made knowledge management questionnaire was used for data collection. This researcher-made questionnaire has 74 items scored based on five-point Likert scale including very inappropriate (score 1), inappropriate (score 2), somewhat appropriate (score 3), appropriate (score 4) and very appropriate (score 5). Therefore, the lowest score in this tool is 74 and the highest score is 370, and a higher score indicates higher ability in knowledge management. The content validity of the researcher-made knowledge management questionnaire was confirmed by experts and its total reliability was calculated by Cronbach's alpha of 0.90. It should be noted that for data analysis, exploratory factor analysis and structural equation modeling methods were used by SPSS-23 and LISREL-8.8 software.

3. Findings

243 faculty members of the Islamic Azad University of West Azerbaijan Province participated in this study. So that for gender, 183 participants (75.31%) were men and 60 participants (24.69%) were women. For education, 12 participants (4.94%) had master's degree and 231 participants (95.06%) had Ph.D. For place of service, 144 participants (59.26%) lived in Urmia, 75 participants (30.86%) lived in Khoy and 24 participants (9.88%) lived in Mahabad. For work experience, 18 participants (7.41%) had 1-10 years of work experience, 183 participants (75.31%) had 11-20 years of work experience and 42 participants (17.28%) had 21-30 years of work experience.

Before data analysis by factor analysis method, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy with a statistic of 0.91 and Bartlett test with a statistic of 9853.14 at a level less than 0.001 were significant and indicated that the appropriate conditions for factor analysis. In other words, the data were adequate and correlated to perform factor analysis. The results of exploratory factor analysis of convergent validity and reliability for knowledge management were reported in Table 1.

Table1. Results of exploratory factor analysis for convergent validity and reliability for knowledge management

factor	item	Factor load	Convergent validity (AVE)	Reliability (Cronbach's alpha)	Percentage of total variance
Infrastructure and information technology	9	0/66	0/64	0/84	
Knowledge management processes	13	0/75	0/77	0/93	
Organizational structure and setting	10	0/61	0/66	0/80	
Intellectual and innovative capital	10	0/68	0/71	0/87	74/23
Human resources and training	11	0/79	0/82	0/78	
Knowledge leadership	8	0/72	0/70	0/89	
Management	7	0/57	0/59	0/83	
Organizational culture	6	0/52	0/56	0/79	

As shown in Table 1, knowledge management had eight factors of infrastructure and information technology, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and training, knowledge leadership, and organizational management and culture. The factor load and convergent validity of all of them were higher than 0.50 and the reliability of all of them was higher than 0.70 and these eight factors explained 74.23% of the total variance of knowledge management in the branches of Islamic Azad University. The results of mean, standard deviation and correlation coefficients of knowledge management factors were reported in Table 2.

Table2. Results of mean, standard deviation and correlation coefficients of knowledge management factors

factor	Mean	SD	1	2	3	4	5	6	7
1. Infrastructure and information technology	27/24	2/86	1						
2. Knowledge management processes	36/39	3/77	0/36**	1					
3. Organizational structure and setting	29/95	2/87	0/24**	0/46**	1				
4. Intellectual and innovative capital	28/17	2/79	0/12*	0/14*	0/15*	1			
5. Human resources and training	28/79	2/47	0/15**	0/30**	0/31**	0/26**	1		
6. Knowledge leadership	24/25	2/14	0/14*	0/12*	0/20**	0/29**	0/18**	1	
7. Management	20/04	2/03	0/26**	0/26**	0/24**	0/24**	0/20**	0/26**	1
8. Organizational culture	17/15	1/82	0/13*	0/33**	0/30**	0/24**	0/29**	0/27**	0/28**

**P<0.01, *P<0.05

As shown in Table 2, sufficient correlation was between all knowledge management factors to model structural equations. In addition, the assumption of normality based on values of Kolmogorov-Smirnov test was confirmed for all knowledge management factors (P> 0.05). The results of knowledge management model fit indicators were reported in Table 3.

Table3. Results of knowledge management model fit indicators

index	CMIN/DF	RMR	RMSEA	PNFI	CFI
value	1/54	0/02	0/04	0/54	0/92
criterion	Less than 3	Less than 0.05	Less than 0.08	More than 0.05	More than 0.90
interpretation	desired	desired	desired	desired	desired

As shown in Table 2, knowledge management model had a good fit. The results of the knowledge management model for standard coefficients are presented in Figure 1 and the results of its effects are presented in Table 4.

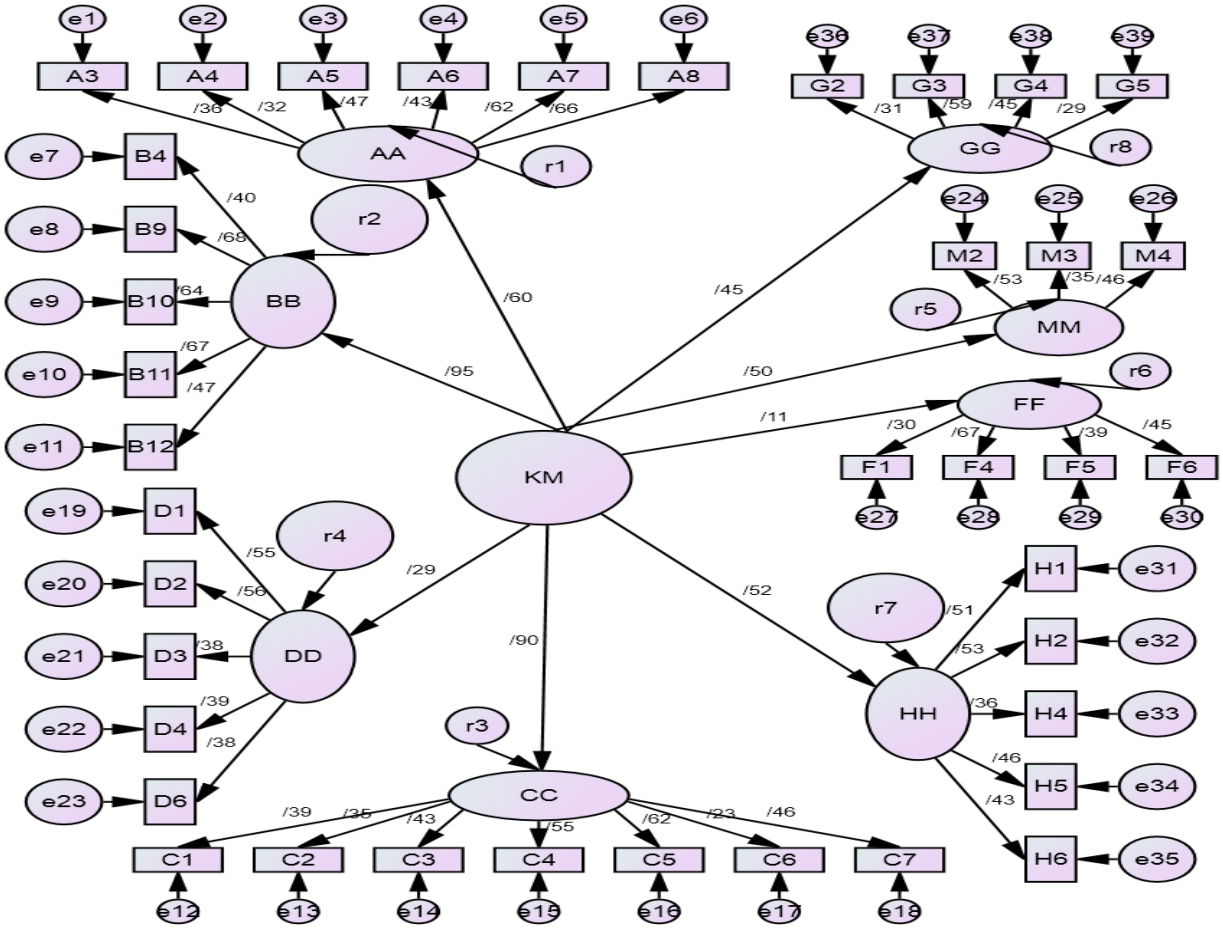

Figure1. Results of knowledge management model for standard coefficients

Table4. Results of effects of knowledge management model

factor	Standard coefficient	t	significance	Interpretation
Effect of infrastructure and information technology on knowledge management	0/60	7/02	0/001	Not rejected
Effect of knowledge management processes on knowledge management	0/95	17/46	0/001	Not rejected
Effect of organizational structure and setting on knowledge management	0/90	15/39	0/001	Not rejected
Effect of intellectual and innovative capital on knowledge management	0/29	4/38	0/014	Not rejected
Effect of human resources and training on knowledge management	0/50	6/68	0/001	Not rejected
Effect of knowledge leadership on knowledge management	0/11	2/11	0/046	Not rejected
Effect of management on knowledge management	0/45	5/15	0/008	Not rejected
Effect of organizational culture on knowledge management	0/52	6/74	0/001	Not rejected

As shown in Figure 1 and Table 4, all eight factors of infrastructure and information technology, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and training, knowledge leadership, and organizational management and culture had a direct and significant effect on knowledge management ($P < 0.05$).

4. Discussion

In recent years, knowledge management has been considered by experts, planners and researchers as one of the most interesting and challenging management issues due to its important role in organizational success and performance. As a result, the present study was conducted aimed to provide a knowledge management model in the branches of the Islamic Azad University of West Azerbaijan Province.

The study results showed that knowledge management had eight factors of infrastructure and information technology, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and training, knowledge leadership, and organizational management and culture, all of which had a direct and significant effect on knowledge management. These results are consistent with the study results of Karimi, et al. (2020), Tarhani (2020), Sadri (2019), Dehghani, et al. (2019), Ronaghi, et al. (2019), Zouari and Dakhli (2018), Khalaj and Zareiyan (2016), Haq and Anwar (2016), Ezzati, et al. (2016) and Sedighi, et al. (2015). For explaining the results, it can be said that one of the important components of management in a knowledge-based society is knowledge management. In the present century, an organization that is not successful in knowledge management will face difficulties in developing its activities. In universities and educational institutions, lack of organizational efforts for acquiring and sharing knowledge, not using the acquired knowledge and engaging in non-knowledge-based activities can negatively affect the performance and quality of training. Therefore, establishing a proper knowledge-based system and acquiring, distributing and using the knowledge of individuals before leaving the organization and transferring it to young and inexperienced forces is one of the necessities of the higher education sector. Knowledge management is a general solution for creating a continuous competitive advantage for educational organizations, especially the Islamic Azad University, given its size and scope. In fact, knowledge management causes using organizational knowledge well in all parts of the organization.

For explaining the factors and their effects on knowledge management, it can be said that infrastructure and information technology allow the organization to use knowledge management systems to store and disseminate unstructured information. Today, there is a growing interest in the field of knowledge management in organizations and scientific centers. The global and modern view of knowledge management infrastructure is a technical and social view. Infrastructure is an important aspect of organizational capabilities, and the key infrastructure for knowledge management includes technical, structural, cultural, and people-related infrastructure. Information technology is also an integral part of knowledge management, which helps to disseminate knowledge horizontally and vertically inside and outside the organization. Information technology makes it possible to integrate knowledge flows and resolve barriers to communication between different sectors. The aim of technology development is to solve a problem or dilemma in society or better use of resources and provide opportunities for growth and excellence, and managers of leading and knowledge-based organizations use infrastructure and information technology as a driving force and effective factor in organizational progress and success for knowledge management.

Another factor is knowledge management processes, which reflects the principle that if we want to implement and establish knowledge management in an organization, what activities and actions should we, do? Knowledge management processes include acquiring knowledge, organizing and storing knowledge, distributing knowledge, using and developing knowledge, and evaluating knowledge. One of the processes of knowledge management is storing knowledge. During this process, the knowledge acquired and developed in the organization or the experiences acquired from using knowledge are stored in the organization in a principled and correct manner. In the process of distributing knowledge, methods of distributing knowledge are discussed among the employees of the organization. Each of the knowledge and experiences acquired in the organization can be developed according to the new needs of the organization or changing the inside and outside settings. In this process, it is determined by what methods we can use to develop previous knowledge to meet new needs and conditions.

Organizational structure (operating setting) is another factor. Organizational structure hinders or encourages the effective implementation of management with the two dimensions of recognition and focus as its key and underlying variables that affect the implementation of knowledge management. Different combinations of these two dimensions create different organizational structures. For the dimension recognition, the implementation of knowledge management with rules and regulations of work develops the formation, transfer and use of ideas, and increasing flexibility in organizational structure can contribute to knowledge management success. Less recognition allows members of the organization to interact and communicate appropriately in order to implement knowledge management. In other words, the structure of the organization should facilitates the flow of knowledge and allow knowledge to have a profound effect on performance. For the dimension centralization, the implementation of knowledge management is related to decision-making power. Decentralized structures often distribute decision-making power, and in such structures the creative solutions increase significantly. Communication channels of centralized structures are very slow and time-consuming. While a decentralized structure provides a setting in which employees voluntarily participate in the implementation of the knowledge management process. So, one of the facilitating dimensions of this process is decentralization.

Intellectual and innovative capital is another effective factor. Intellectual capital is defined as knowledge under various headings such as individual skill, creativity and ability of employees to perform tasks, which includes the philosophy, culture and credibility of the organization. Intellectual capital includes human capital, organizational capital and social capital. Human capital includes the set of skills of the workforce and the extent of their experience. Organizational capital includes inhuman resources of knowledge in the organization such as databases, organizational charts, strategies and executive plans. Social capital includes embedded knowledge that is accessible through interactions between individuals and communication networks between them. Also, another effective factor is human resources and training. Human resource development means a change in knowledge, attitude, behavior and skills of individuals and it can be said that the knowledge management process affects the development of human resources and with the successful implementation of the knowledge management process, the human resources increase. Using knowledge management leads to higher productivity of human resources, more efficient and effective learning of employees, prevention of repetition of mistakes, saving time when solving problems, and stimulating creativity and innovation of employees. In this regard, it should be said that the process of knowledge management through training transfer model leads to the development of human resources. These processes can help employees acquire effective knowledge, and the acquisition of effective knowledge by employees leads to employee productivity and finally the development of human resources. Another factor is knowledge leadership and senior management has the highest responsibility in empowering knowledge management in any organization and can affect the success factors of knowledge management. For this purpose, it can strengthen the culture of knowledge distribution, design training programs based on knowledge management, team of knowledge management and support to measure the performance of the university and develop guidelines for all knowledge-based processes.

In addition to the above, other effective factors on knowledge management are organizational management and culture. Knowledge management has an inseparable culture with the culture of the organization. Organizational culture values knowledge and encourages employees to disseminate knowledge, and proper management provides an opportunity for managers to create a knowledge-based organizational culture and adopt appropriate policies in this regard. Culture usually loves knowledge, and develops and disseminates it and supports knowledge management processes. Organizational culture is one of the infrastructure variables for the implementation of knowledge management and organizations should establish an appropriate culture for the implementation of knowledge management. Organizations also need a continuous learning setting or culture to successfully implement knowledge management; in a way that learning happens at all levels of the organization. In a learning culture, individuals seek out problems and are

encouraged to learn, and through learning tools such as training, they reinforce the implementation of knowledge management. In the future, there will be successful and sustainable organizations that are ahead of others and are constantly learning and managing knowledge. For this purpose and the realization of knowledge management, organizations need supportive relationships, joint efforts and creating an atmosphere of intimacy and friendship. In such a culture, individuals support and help each other and provide each other with the knowledge needed to perform organizational activities for easy use of knowledge and background for providing new ideas and methods in the organization.

The first limitation of this study is the study population limited to the faculty members of the Islamic Azad University of West Azerbaijan Province, which makes it difficult to generalize the results to the faculty members of other provinces. Another limitation was the lack of other models of knowledge management or the small number of models in higher education, which did not allow for a good comparison of results. Therefore, it is suggested to conduct further studies on the knowledge management model in the faculty members of the Islamic Azad University of other provinces, compare the results with the results of the present study and even investigate such a model by gender. Another suggestion is to standardize the knowledge management questionnaire in the faculty members of other provinces and determine each factor and their ranking. Since this study investigated the factors affecting knowledge management, it is suggested to investigate barriers affecting knowledge management in other studies. According to the study results, planning to improve knowledge management through factors of infrastructure and information technology factors, knowledge management processes, organizational structure and setting, intellectual and innovative capital, human resources and education, knowledge leadership, and organizational management and culture is essential. According to the results of the present study and the role and importance of knowledge management on organizational success and performance, modeling of successful universities in the world in implementing and measuring knowledge management and its factors in different universities, holding symposiums on how to distribute knowledge between professors and investigate factors of knowledge management, providing appropriate rewards and reinforcements to have the desired knowledge management performance, supporting qualified and outstanding professors in the field of knowledge management, distributing and transferring knowledge internally and externally, designing educational programs based on knowledge management, developing guidelines for all knowledge-based educational processes, providing a platform for creativity and innovation, providing an appropriate and up-to-date information system in the university, creating electronic libraries and databases, documenting articles, books and dissertations related to the organization's goals, designing space for recording effective and efficient experiences, creating an setting and space for information exchange, using performance reports and coordination between all educational and research units is recommended.

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