





# The Status of Knowledge Management in the Libraries of Selected Medical Sciences Universities in Tehran City: Using Bukowitz and Williams Model

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## Abstract

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**Introduction:** As a foundation of acquiring, retrieving, processing, storing, and distributing knowledge and information, libraries are considered an essential communication link in the knowledge management (KM) chain in universities. Therefore, the present study aimed to investigate KM status in the libraries of selected medical sciences universities in Tehran city using the Bukowitz and Williams's model.

**Methods:** This is an applied research with a descriptive survey method. A researcher-made questionnaire was used to collect data, the validity of which was calculated using the opinions of experts, and its reliability was estimated using Cronbach's alpha coefficient. The study population included 153 managers and librarians of central, faculty, and hospital libraries of Tehran, Iran, and Shahid Beheshti Universities of Medical Sciences. To analyze the data, descriptive statistics, and to compare the mean obtained for each component with the standard score, a one-sample t-test with a significance level of 0.05 was used.

**Results:** The study results revealed that the mean score of KM status in the libraries of medical sciences universities in Tehran based on Bukowitz and Williams's model was 144.85, which is above average. Also, among the studied components, using knowledge, learning knowledge, contributing to knowledge, and divesting knowledge are above average, and building/sustaining knowledge was average, and knowledge assessing and getting were below average.

**Conclusion:** In general, the findings indicated that the KM status based on the Bukowitz and Williams's model in the libraries of selected medical sciences universities in Tehran is desirable. Therefore, according to previous studies in comparison with this study, it can be concluded that KM in the libraries of selected medical universities in Tehran is progressing.

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## Introduction

As societies enter the modern century, knowledge, like information and technology, has emerged as one of the determinants of development and progress. Utilizing knowledge as one of the intangible assets is common in many organizations and as a strategic resource, as well as a critical competency for organizations, is of particular importance. Knowledge is one of the essential assets of bodies that must be managed and exploited. Therefore, organizations will have better efficiency and effectiveness to build and manage this

organizational knowledge and contribute to it among their staff. The task of knowledge management (KM) is to manage the knowledge capital of any organization. KM is defined as how an organization builds, sustains, and contributes to knowledge to improve its efficiency and effectiveness (1). KM includes all the methods that an organization manages its knowledge assets and includes: know-how, get/acquire, store, employ, apply/use, update, and create knowledge (2). Given the growing importance of knowledge in institutions



such as universities, KM will be a beneficial tool to take advantage of it. KM is crucial because, in the current era, universities are facing issues such as the globalization of higher education, the establishment of joint disciplines and educational institutions between countries, the exchange of professors and students between different countries, efforts to attract international students, competition in the market to provide the required budget and costs (3). This can play a vital role in advancing society's scientific level in selected medical sciences universities, which are among the leading centers for the generation and dissemination of medical knowledge. To achieve this, universities must have the necessary conditions and capabilities, and their success in this competitive arena depends on many factors, one of the most important of which is having well-equipped and efficient libraries (4).

Applying KM in libraries allows people to reduce costs and repetitive tasks and perform their tasks more creatively and efficiently (1). Besides, KM helps the organization increase productivity, revenue, simplify procedures, eliminate unnecessary tasks, and increase profitability (5). KM as a factor for competitiveness and organizations' survival has also created an opportunity for libraries, especially academic libraries, to improve efficiency. Academic libraries can also take advantage of librarians' knowledge, information, and knowledge in organizational repositories by using KM programs. One of the best library's sections that can benefit from KM programs is the reference section and technical services (cataloging and classification). Also, the implementation of KM programs can improve the services and provide users' information needs better.

Implementing KM can improve the educational environment, increase communication between faculty members, students, and staff, and ultimately increase better service to users. Wherever libraries are centers for the creation, storage, and dissemination of information, KM can transform universities and libraries' performance. However, one of the main problems in many organizations and institutions, including libraries, is the lack of or mismanagement of knowledge. In the organization, there is not enough information and a proper assessment of the current level of knowledge and how to apply it. Managers train their co-workers well enough but do not allow them to apply their knowledge; staff learn a lot of information and knowledge in projects but do not transfer the experience gained; there is an expert in the organization for each question, but few know how to access it; everything is documented, but it is not possible to access the stored knowledge at the right time; smart people are hired, but, after a few years, the organization loses in favor of competitors everyone is encouraged to share knowledge, but key individuals retain sensitive knowledge (6). For this reason, it prevents the existing knowledge of the organization from being used optimally.

Based on the attitude of experts towards KM, different models for KM have been developed. The purpose of the proposed models for KM is that organizations act thoughtfully and consciously in applying KM and have a suitable framework for knowledge creation, distribution, and application. Most of the existing models are similar in content, and all emphasize the use of information. Types of these models include Nonaka and Takeuchi, Ruggles, Wiig, Hicks, Weggeman, Newman & Conard, Beckman, and Bukowitz and Williams. Among them, one of the models used for knowledge management in

organizations, including libraries, is a model proposed by two experts named "Bukowitz" and "Williams." This model was selected due to the better development of KM implementation stages and its suitability for academic environments (7). The components of the KM model presented by Bukowitz and Williams include seven factors:

A. Get: The essential points that should be considered in finding the right information at the right time and following the needs of the organization:

1. Can colleagues accurately formulate their information needs?
2. Are the sources of knowledge known?
3. Do existing quality tools and rules support information retrieval?
4. Are the foundations of the knowledge structure understandable and well organized?

B. Use: Use the knowledge gained in decision making.

C. Learn: Gathering previous experiences and knowledge, as well as examining the reasons for the success or failure of completed projects in order to include their results in future projects to make them useful.

D. Contribute: In this process, colleagues transfer their knowledge and information to the intended person, which expands organizational knowledge basics.

E. Assess: In this process, the available knowledge and the current and future knowledge needs must be assessed. To do this, it is necessary to measure the growth rate of knowledge bases, as well as related investment achievements.

F. Build/Sustain: In this process, important and strategic knowledge must be developed and stored. Also, knowledge assets must be considered.

G. Divest: In this process, a knowledge that is strategically meaningless for another application must be removed from the system or stored elsewhere (7, 8).

Jalili described librarians' attitude towards the possibility of implementing KM in academic libraries in Kermanshah based on the model of Bukowitz and Williams. Findings showed that there is no significant difference between factors such as gender, the field of study, work experience, level of education, type of work, and type of academic libraries in Kermanshah with the attitude of librarians (9).

Gholami studied the application of KM factors in the libraries of Isfahan University of Medical Sciences. The results indicated that the status of all six components of KM is below average, which seems to be used unscientifically for reasons such as lack of written instructions and policies and support of officials (10).

In his dissertation, Zyarati examined KM's status based on Bukowitz and Williams's model in the affiliated libraries of the Seminary of Qom, so he concluded that these libraries are not in desirable conditions in terms of implementation and performance of KM (11).

Mohammadi Ostani studied the feasibility study of establishing KM based on the Bukowitz and Williams model in Isfahan's academic libraries. The results showed that it is impossible to implement KM in these libraries in the same way (7).

In overseas studies, Islam et al. studied the application of KM to improve library services in Bangladesh and found that its application leads to the promotion of specialists' knowledge and organizational culture, as well as changing staff behavior (12).

Kumar Agarwal and Anwarul Islam point to various factors



such as technology and communication technologies for the implementation of KM (13). Ralph and Ellis also examined KM's use for reference services in California, USA, and found that KM was not appropriately used (14).

Libraries of medical universities are part of the country's higher education system, and as centers for providing and disseminating technical, medical information are of particular importance in improving the quality of medical care in the country. Therefore, improving the quality of services of these centers has a fundamental role in achieving society's goals concerning public health. Accordingly, the principled and correct application of knowledge management processes in these libraries can significantly help maintain and develop organizational knowledge. Due to the lack of research on the status and establishment of KM in the libraries of medical universities in Tehran, the researcher intends to determine KM's status in the libraries of these universities based on the model of Bukowitz and Williams. Conducting this research can be effective in future planning in the field of KM and systematic implementation of KM in the studied libraries. Therefore, this study aimed to determine KM's status in the components of "knowledge getting, knowledge learning, contributing to knowledge, knowledge assessing, knowledge building and sustaining, and knowledge divesting" in the libraries of selected medical universities in Tehran. Managers can use this research to design KM programs and identify their strengths and weaknesses in the target medical universities to develop strategic plans and move them towards knowledge-oriented organizations.

## Methods

This research was applied in terms of purpose and descriptive by survey method. The data collection tool was a researcher-made questionnaire that was made using similar questionnaires (7, 11, 13, 15) in the field of the studied model by reviewing the literature.

The questionnaire consisted of seven main components, and each component included a maximum of nine and a minimum of three questions. A total of 45 questions were in the form of a 5-point Likert scale, and the score of each item was calculated as the minimum 1 and the Maximum 5. The questionnaire's validity was examined using the professors' opinions of library and information in this area, and its reliability was calculated using Cronbach's alpha coefficient (0.94). This questionnaire was distributed among the research community, including 185 managers and librarians working in the central, faculty, and hospital libraries of Tehran, Iran, and Shahid Beheshti Universities of Medical Sciences. All individuals in the census in 2019 participated in this study. Of these, 153 questionnaires were completed and returned.

To analyze the data, descriptive statistics (mean and frequency distribution table) and to check the status of the components, sample t-test was used. Using the Kolmogorov-Smirnov test, the data distribution was found to be expected. Therefore, to compare the numbers obtained with the standard score, using SPSS 20 software, the t-test of each component was calculated at a significance level of 0.05. In this test, the sample mean was compared theoretically with a hypothetical mean. The hypothetical mean can be a

common or standard value or obtained using methods such as the cut-off point. There are two methods of cut points: one is the data cut point, and the other is the resultant cut point. In this study, using the data cut points, the average value (standard score) for all components were considered, and the average obtained for each component was compared with it. A general standard score was considered for KM 138 and for knowledge getting (score=21), knowledge using (score=27), knowledge learning (score=27), knowledge contributing (score=15), knowledge assessing (score=21), knowledge building/sustaining (score=15), and knowledge divesting (score=12).

## Results

The findings are presented in three sections describing the demographic characteristics, components of the KM model, and KM's general status in two tables.

Among 185 questionnaires distributed, 153 questionnaires were completed and returned. These characteristics were considered in six sections: gender, the field of study, type of responsibility, type of library, work experience, and degree. In total, the genders of the participants in this study were 134 females and 19 males, respectively, and the field of study was 108 librarians and 45 non-librarians. The collected data were mostly related to school libraries (N=77), and in terms of the type of work in the library, most participants were employed in the technical services section (N=78). Also, most of the participants (N=40) had 11 to 15 years of work experience, and in terms of degree, most participants (N=57) had a bachelor's degree.

Table 1 demonstrates the status of each component of KM in the libraries of selected medical universities in Tehran in terms of mean, standard deviation, minimum value, maximum value, t-test, significance level, and standard score, separately.

Table 1 shows the highest and lowest mean scores are related to the components of "knowledge learning" and "knowledge contributing," respectively. The average score of these two components is also higher than the average of the standard score. The results of the t-test show that there is no significant difference between the mean and standard score of "Knowledge getting" and "Knowledge assessing" components (P-value > 0.05), but the difference between a standard score and mean of other components is significant (P-value < 0.05). It can be said that the evaluation of knowledge is 0.64 higher than the standard level, but based on the significance level, this difference is not significant. In other components, it can be said that their mean score is higher than average. Only in the case of the "knowledge getting" component, as the data in the table show, the average score of this component is less than the standard score and based on the level of significance of this difference is significant. It can be said that the average component of "knowledge getting" is below average and at a low level.

Table 2 indicates KM's general status in the libraries of selected medical universities in Tehran in terms of mean, standard deviation, minimum value, maximum value, t-test, significance level, and standard score.

As Table 2 shows, the KM's mean score is 144.85, and its standard score is 138. Also, the t-test indicates a significant difference between these two scores at a significance level of 0.05 (P-value = 0.008)



Table 1. Status of KM components in the libraries of selected medical universities in Tehran

KM Components	Mean	SD	Minimum Value	Maximum Value	T-test	Sig.	Standard Score
Knowledge getting	18.92	-2.076	9	29	-6.098	0.000	21
Knowledge using	28.11	1.110	11	42	2.034	0.044	27
Knowledge learning	30.53	3.534	14	44	5.601	0.000	27
Knowledge contributing	15.86	0.864	7	23	2.229	0.028	15
Knowledge assessing	21.64	0.644	8	33	1.193	0.235	21
Knowledge building/sustaining	16.42	1.424	9	24	3.923	0.000	15
Knowledge divesting	13.35	1.347	8	20	5.317	0.000	12

Table 2. General status of KM in the libraries of selected medical universities in Tehran

General Status of KM	Mean	SD	Minimum Value	Maximum Value	T-test	Sig.	Standard Score
	144.85	6.847	76	203	2.709	0.008	138

## Discussion

In general, the research revealed that the status of knowledge management based on Bukowitz and Williams's model in the libraries of selected medical universities in Tehran is above average. Based on this study's findings, KM's status in the components of knowledge using, knowledge learning, knowledge contributing, and knowledge divesting is above average, knowledge building/sustaining is average, and knowledge assessing and knowledge getting is below average. In examining the results of previous researches and comparing them with the findings of this research, the results of Ghasemi et al. (2016) showed that the components of the Bukowitz and William model are practical on the implementation of KM in Zahedan medical sciences libraries. However, in the results of Jalili et al.'s (2014) study, the findings showed that there is no significant difference between the mean of the subjects based on the gender, field of study, work experience, level of education, type of work, and type of Academic libraries in Kermanshah with KM components (9).

In Mohammadi Ostani's (2010) research, the rate of getting knowledge in academic libraries in Isfahan is 3.07, above average. In Jalili et al.'s (2014) research, the rate of getting knowledge in Kermanshah's academic libraries is 3.03, higher than average. Therefore, the present research results are in line with the findings of Mohammadi Ostani and Jalili et al (7, 9).

In the study of Mohammadi Ostani (2010) and Zyarati (2014), the level of knowledge assessing is lower than average, which is not consistent with the findings of the present study (7). In Zyarati's research (2014), the knowledge building/

sustaining component rate is 2.9, which is at an average level and consistent with this study. However, regarding the components of knowledge getting, knowledge learning, knowledge contributing, and knowledge divesting, the present study was not similar to the studies conducted (11).

## Conclusion

According to the findings of this study and its comparison with previous studies (7, 9-11, 13, 16), it showed KM's status in the study population above average. It can be concluded that KM in the libraries of selected medical universities in Tehran is progressing, and its importance and implementation has been realized to some extent. However, due to the extraordinary speed of technology in the modern era and the KM expansion in libraries around the world and for reasons such as the low commitment of senior library managers in building and deploying KM and the low presence of companies specializing in the building, sustaining and assessing KM, it seems that this level of progress is not enough and needs more attention.

Therefore, it is suggested that these library administrators provide librarians with a correct understanding of the organization's goals. Also, acquaint them with the organizational structure and processes of universities and increase the knowledge of librarians in identifying library users to strengthen the "knowledge getting" variable. On the other hand, due to the particular importance of the process of "knowledge contributing" in universities, it can be further strengthened with financial incentives (salary increase, job promotion) and spiritual incentives (encouragement, respect). Also, since the status of "knowledge assessment" in these universities is not in



a desirable condition, more attention to the qualitative criteria of knowledge assessment, the form of knowledge, and the type of knowledge can improve this. Examining the necessary infrastructure for KM in the academic community is essential. Also, applying other models of KM implementation to create a complete and domestic model seems necessary.

## Declarations

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### Conflicts of Interests

The authors declare no conflict of interests.

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