

Investigating the relationship between knowledge management practices and organizational learning practices in the universities' environment

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ABSTRACT

The concept of knowledge management (KM) and organizational learning (OL) has been embraced by organizations to complement each other. Higher education institutions have embraced KM and OL as a means to improve organizational efficiency. This research explores the link between KM and OL. The target population included all the 432 academicians and administrators from 35 public universities in Iraq. The sampling was selected using a stratified random sampling technique. The correlation among the components of KM and OL was tested as well as the effect of KM components on OL. The findings were derived using smart partial least square. The findings showed that there is significant correlation between components of KM and components of OL. The regression analysis showed also that the effect of KM and its components; knowledge creation, knowledge sharing, knowledge storage, knowledge application and knowledge acquisition on OL are significant. These findings provide insights to universities management on strategies to implement KM practices that can align with OL practices to assure dynamic lifelong mechanisms for the basic daily activities such as teaching, learning, researching, and supervision.

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1. INTRODUCTION

Knowledge is viewed as the information that proved to be correct [1]. Knowledge, being recognized as a valuable organizational asset is considered the most critical mission for the top managements' policies and strategies to enhance the universities rankings and competitive advantages [2]. Notions of knowledge management (KM) focus on creating, acquiring, sharing, applying, and preserving knowledge, which will bring about improved effectiveness, efficiency, and competitiveness [3]. Universities are considered knowledge-based organizations that perceive each practice within the KM chain as potential knowledge enrichments that simultaneously enhance the students and academicians' learning activities [4]. The systematic management of knowledge can empower students' capacities to learn new knowledge, refine the existing knowledge, and apply it in renewable forms and techniques.

In an overlapping environment, universities demand an organizational learning (OL) process that is managed systematically by basic learning practices and not in chaotic actions to provide the universities

community with the basic practices. OL is essential in any university to ensure that the individual and group level learning process is a continuous renewal of the required knowledge, skills and activities and transform what has been learnt to the new generations of students and academicians [5]. Consequently, a vital need exists to precisely investigate the association between KM and OL practices in the universities' environments.

Previous studies have investigated and confirmed the relationships between KM and OL as a dimension without reflecting the practices in each field [6]–[9]. The impact of KM practices, notably knowledge creation, acquisition, sharing, storage, and application, on the OL practices that support learning and new ideas involving internal, external, formal, informal, and non-formal learning remains unknown. In addition, only a few studies examined the relationship of KM and OL as a dimension in the universities' atmosphere. Students, academicians, and administrators are the primary knowledge workers requiring intensive investigation of all practices in KM and OL fields [10], [11].

According to the mentioned discussion, the current study is a pioneer in investigating the relationship between KM and OL practices in the Iraqi universities' environment. The study results are expected to determine the impact of KM practices on OL practices. In the next sections, the literature review, methodology, findings, discussion and conclusion are discussed.

2. LITERATURE REVIEW

2.1. Knowledge management practices in the universities environment

Knowledge management (KM) is known as a significant set of practices deployed to alleviate the academic knowledge for students, academicians and administrators in the universities' environment. KM can produce organizational knowledge, procedures, and techniques that widely enhance learning, teaching, and researching activities, which can improve academic performance. The primary aim for universities seeking to initiate KM practices in their environment is to maintain the competitive advantage with other universities and help them attain top global ranking records such as Shanghai ranking, QS World University Rankings, and other rankings used to indicate the best universities' performance. Hence, KM can be defined explicitly as the set of knowledge creation, storage, acquisition, sharing, and application processes. The processes are practically associated together to assure high knowledge quality that maximizes the overall academic performance and create dynamic values that provide feedback for the basic academic activities such as learning, teaching, and researching [4], [12].

Universities as knowledge-intensive organizations rapidly aim to link KM practices in their daily activities. Boroujerdi *et al.* [13] investigated the relationship between KM practices and organizational innovations (OI). The researchers found a significant relation between KM practices and OI. In addition, KM practices support and predict OI practices in higher education institutions. In the same context, [14] investigated the impact of KM practices on universities' performance. The researchers found that knowledge creation, integration, and application improve the universities' performance and innovations.

Nevertheless, knowledge creation has more significant impacts on the quality and quantity of innovation and performance. Ultimately, [12] proved a significant relation between KM practices and sustainable competitive advantage. The researchers stated that universities must create, store, share, and apply the knowledge back by identifying and formulating knowledge to maintain the competitive advantage for these universities. Based on the above studies, there is a need to study the basics five practices in the KM life cycle in the universities' environment. The practices are identified as the following: i) knowledge creation is defined as the practice of continuous diffusion, generation, and conversion of different types of knowledge [15]; ii) knowledge acquisition is defined as the practice of making an effort to obtain knowledge from the organizations' external and internal sources to fulfil intangible assets [16]; iii) knowledge storage is defined as the practices of aggregating, structuring, classifying, and maintaining knowledge that allows organizations to store the existing knowledge in various forms, such as documents, electronic databases, and best practices [17]; iv) knowledge sharing is defined as the practice of dissemination of various kinds of knowledge throughout the learning process that the organization engages for their employees to create new knowledge; and v) knowledge application is defined as the process of utilizing the existing knowledge to create decisions and operations implanted to achieve specific tasks and goals.

Consequently, a large diversity exists in locations, size, specializations, and strategies requiring the initialization of KM practices in the Iraqi universities' environment. In addition, the years of chaos that interval with years of devastating wars led to a lack in budgets, management, and systems and techniques development [18]. These long-term circumstances lead to an urgent need to implement these five basic knowledge management (KM) practices to improve the competitive advantage and overall performance of the basic academic activities [19].

2.2. Organizational learning practices in universities environment

OL is a multidisciplinary concept with numerous definitions. However, in higher education institutions, OL can be defined as the continuous process of generating and refining knowledge to meet organizational goals, such as improving organizations' performance and competitive advantages [20]. The desire to be OL enterprises with routine activities to maintain lifelong learning is a critical mission for universities to pursue. Consequently, universities with knowledgeable staff capable of solving problems and introducing the best novelty solutions can be defined as learning organizations. In addition, the learning process is essential for universities to cope with the unpredicted changes in the global circumstances, such as the enlargement of the student population, fostering online learning, and adaption of new learning technologies. Therefore, academicians and administrators demand organized learning activities that continuously enhance their knowledge, skills, and expertise.

Universities as OL institutions steadily seek to transform their activities into OL activities that enable universities' staff to be self-learners for lifelong progress. In [7] investigated the relation of OL practices with the readiness of academic staff for education 4.0. The results indicated that the level of OL practices used by academic staff is high, and the relationship is extremely significant. In [21] studied the factors that impact OL development for students by adopting basic OL practices. The result indicated that the proposed model that integrated formal, non-formal and informal learning could develop OL for students successfully, increasing their capacity to learn and absorb the knowledge. Besides, [5] investigated the association between OL and various characterizes of two Estonian universities. The results confirmed that both universities are learning organizations that deployed OL practices to achieve specific development needs to enhance the universities' performance. Based on the above discussion, the five primary OL practices identified below in the universities' environment [22] must be studied: i) support for learning and new ideas. This practice is indicated to extend the university's support learning and pursue the generation of new thoughts, insights, and visions that can be employed to develop knowledge for university staff at all levels; ii) formal learning. This practice presents the level of formal training and learning procedures the university provides that enables the university staff to easily absorb the relevant information to develop general skills and expertise; iii) external interface learning. This practice indicated that learning could be obtained from external sources, such as the home environment, other universities, and research institutions, including knowledge and skills that can be effectively transferred to university staff; iv) informal learning. This practice presents the learning processes among the university staff informally where the mechanisms are used spontaneously; and v) non-formal learning. This practice is present in numerous activities not explicitly perceived as learning practices and initiated from the learners' minds.

2.3. Knowledge management practices and organizational learning practices in the universities' environment

Previous researches have studied the relationship between KM and OL. Generally, several studies investigated the relationship as a dimension between KM and OL without in-depth investigation on the sub-relationships of each internal practice in these fields. In [6] confirmed that KM is a domain that has significant positive effects on the OL domain. In [7] stated that OL and KM have significant positive relationships with the readiness of academic staff for Education 4.0. In [9] found that OL was positively useful to improve KM benefits. OL also had mediating effect between KM capabilities and benefits. In addition, few studies examined the relationships between KM practices and OL as a dimension without involving internal OL practices such as formal, support and external learning. Academicians and administrators are the main knowledge workers requiring intensive investigation of all internal practices for KM and OL fields. In [10] investigated the impact of KM practices on the OL domain in private and public universities in Damascus. The study confirmed that all KM practices significantly impact OL. The study of [11] revealed that KM practices, knowledge acquisition, documentation, application, and creation positively impact OL in Pakistani universities.

The impact of KM internal practices, namely knowledge creation, acquisition, sharing, storage, and application on the OL internal practices, support learning and new ideas, and external, formal, informal and non-formal learning in universities environment are still not investigated. The present study is a pioneer in investigating the relationship between KM and OL practices in the Iraqi universities' environment. The study findings are anticipated to identify the impact level of each KM practice on each OL practice that can create, acquire, share and apply specific knowledge in the lifelong OL process used persistently.

3. THE PROPOSED MODEL AND HYPOTHESES

This research proposed a theoretical model that interrelates the relationships between KM and OL practices anticipated from the study background. The proposed model aimed to reveal connections between

the five KM practices (knowledge creation, acquisition, sharing, storage and application) and the five OL practices (supporting, formal, external, informal and non-formal learning). The proposed model was developed based on KM practices [3], [13] and OL practices [7], [21], [22] in previous studies. Consequently, the proposed hypotheses listed below represent the relationships needed to investigate the level of cohesion and effectiveness between KM and OL practices in the Iraqi universities' environment. Accordingly, the following hypotheses are proposed.

- H1: There is a positive correlation between the components of KM practices and the components of OL practices.
- H2: There is a significant relationship between KM and OL practices.
- H3: There is a significant relationship between knowledge creation and OL practices.
- H4: There is a significant relationship between knowledge acquisition and OL practices.
- H5: There is a significant relationship between knowledge storage and OL practices.
- H6: There is a significant relationship between knowledge sharing and OL practices.
- H7: There is a significant relationship between knowledge application and OL practices.

Figure 1 illustrates the proposed theoretical model with the main and sub-hypotheses persistently. The figure demonstrates KM practices and OL practices while categorize the main processes under each aspect.

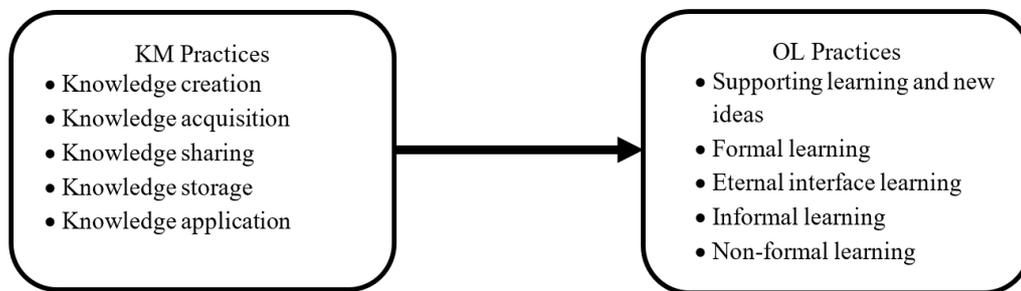


Figure 1. The proposed research theoretical model

4. RESEARCH METHOD

4.1. Population and sampling

The study population is all the universities in Iraq, consisting of academicians and administrators in 35 higher educational institutions in the Iraqi public sector. The higher educational institutions with multiple programs, including diploma, bachelor, master and Ph.D. degrees, were chosen as the target population [23] (Ministry of higher education and scientific research Website). According to Morgan's table, 432 people were chosen from these institutions for a statistical sample. A stratified sampling technique was used in this study due to the differences between the groups. A randomly selected sampling technique was used in each group. The sample size was divided into 322 academicians and 110 administrators.

4.2. Research instrument

A questionnaire was used and adapted as a data collection tool to measure the study variables [13]. The questionnaire was divided into two parts. Part A queried the respondents' background information, such as age, gender, educational level and experience, while Part B focused on the study variables. A five-point Likert scale was used, ranging from (1) strongly disagree to (5) strongly agree. Five Likert scale is more efficient than other scales such as seven and ten points [24].

4.3. Validity and reliability

The validity of the questionnaire was checked by requesting 29 experts to evaluate and pre-test the content of the questions. Their feedback and comments were considered to correct and adjust the instrument. The reliability of the measurements was examined by testing 43 members to answer the questionnaire. The Cronbach's alpha for the study and final data collection for KM and OL were 0.82 and 0.76, respectively, confirming the reliability.

4.4. Data collection

The data in this study were collected from academicians and administrators in Iraqi public universities. The respondents' details were obtained from the universities. A total of 432 questionnaires were emailed to universities staff. The data were collected in January 2021. Finally, 402 usable and completed

questionnaires were received. These responses are sufficient for the usage of smart partial least square (PLS) [25]. No missing value due to the use of “required” function and the data is distributed normally because the skewness and kurtosis are less than 1 as shown in Table 1. In addition, there is no multicollinearity issues due to the fact that variation inflation factors (VIF) is less than 5 and tolerance is greater than 0.20 as recommended by [26], [27]. Result of normality and multicollinearity is shown in Table 1.

Table 1. Normality and multicollinearity

	Normality		Multicollinearity	
	Skewness	Kurtosis	Tolerance	VIF
Knowledge creation	-.210	-.295	.617	1.621
Knowledge sharing	-.263	-.389	.657	1.521
Knowledge acquisition	-.364	-.080	.635	1.576
Knowledge storage	-.375	-.505	.516	1.938
Knowledge application	-.397	-.092	.613	1.630
Supporting of learning new idea	-.417	-.567	.683	1.464
Formal learning	-.387	-.389	.810	1.235
External learning	-.302	-.725	.708	1.413
Informal learning	-.648	-.156	.565	1.769
Non-formal learning	-.359	-.546		

5. FINDINGS

5.1. Statistical analysis

Following the approach of other researchers, [19], [28], descriptive and inferential statistics were applied in this study. This has been conducted using statistical product and service solutions (SPSS) and smart PLS. Thus, the data analysis was assured its consistently and reliability.

5.2. Demographics of respondents

A total of 402 respondents voluntarily participated in this study. They were mainly between 21 and 30 years old and were primarily male. For the education variable, most respondents had a Ph.D. degree, whereas, for the variable of work experience, most respondents possessed 21 to 30 years of work experience. Table 2 shows the respondents' demographic information.

Table 2. Demographic information of respondents

Variable	Label	Frequency	Percent (%)
Age	Less than 20 years	41	10.22
	21-30 years	171	42.46
	31-40 years	93	23.19
	41-50 years	52	12.96
	More than 50 years	45	11.22
Gender	Male	253	63.10
	Female	148	36.90
Education	Diploma	17	4.23
	Bachelor	53	13.21
	Master	124	30.92
	PhD	207	51.62
Experience	Less than 5 years	30	7.48
	5-10 years	51	12.71
	11-20 years	115	28.67
	21-30 years	174	43.39
	More than 50 years	31	7.73

6. HYPOTHESES TESTING

6.1. Correlation analysis (H1)

The hypotheses include two parts. The first is intended to know the correlation between the components of KM and the components of OL. This was answered by conducting a correlation analysis. Table 3 shows the correlation between the components. It shows that there are significant medium correlation between all the components except for the correlation between knowledge sharing (KS), knowledge application (KAP) and knowledge creation (KR) with the non-formal learning (NFL). Therefore, H1 is supported as the majority of the correlation among the variables are significant at p-value of less than 0.05 as shown in Table 3.

Table 3. Pearson correlation

	KR	KS	KA	KST	KAP	SLNI	FL	EL	IL	NFL
KR	1									
KS	.490**	1								
KA	.447**	.431**	1							
KST	.398**	.282**	.331**	1						
KAP	.369**	.326**	.304**	.545**	1					
SLNI	.333**	.307**	.406**	.428**	.389**	1				
FL	.230**	.149**	.216**	.392**	.192**	.246**	1			
EL	.278**	.341**	.401**	.379**	.246**	.368**	.260**	1		
IL	.424**	.367**	.233**	.545**	.483**	.392**	.318**	.371**	1	
NFL	.028	-.003	.125*	.122*	-.019	.131*	.205**	.205**	.134*	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). Note: KR: knowledge creation, KS: knowledge sharing, KA: knowledge acquisition, KST: Knowledge storage, KAP: knowledge application, SLNI: supporting of learning new idea, FL: Formal learning, EL: external learning, IL: informal learning, NFL: Non-formal learning.

6.2. Regression analysis (H2-H7)

Smart PLS was deployed to examine the hypotheses of this study. The measurement model and structural model were assessed. As shown in Table 4, the value of Cronbach's Alpha (CA), composite reliability (CR), and average variance extracted (AVE) have achieved the required level as recommended by researchers [29], [30]. All the factor loading is greater than 0.70 except for two items from knowledge sharing and knowledge application were deleted due to low factor loading. In addition, the discriminant validity was achieved because the value of the root square of AVE is greater than the cross loading as shown in Table 4.

Table 4. Result of measurement model

	CA	CR	AVE										
EL	0.89	0.93	0.82	0.91									
FL	0.87	0.91	0.78	0.63	0.92								
IL	0.80	0.90	0.810	0.60	0.56	0.89							
KA	0.93	0.95	0.78	0.42	0.45	0.44	0.88						
KAP	0.86	0.91	0.71	0.50	0.52	0.50	0.41	0.84					
KR	0.84	0.88	0.51	0.59	0.54	0.66	0.45	0.50	0.81				
KS	0.88	0.93	0.80	0.52	0.56	0.56	0.43	0.50	0.42	0.90			
KST	0.89	0.92	0.75	0.44	0.53	0.47	0.33	0.55	0.45	0.48	0.87		
NFL	0.79	0.85	0.68	0.54	0.60	0.57	0.38	0.48	0.56	0.50	0.40	0.89	
SLNI	1.00	1.00	1.00	0.59	0.52	0.51	0.48	0.56	0.70	0.60	0.53	0.43	0.91

The structural model is assessed also in this study. R-square of the model showed value of 0.573 indicating that 57.3% of the variation in OL can be explained by KM practices. The predictive relevance or Q-square greater than zero. The effect size is greater than 0.02 for all paths. Table 5 shows the result of testing the hypotheses. The second hypothesis (H2) is confirmed, and the effect of KM on OL is positive and significant because the p-value is less than 0.05. For H3, H4, H5, H6, and H7, they are also supported as shown in Table 5. These findings indicate that the knowledge creation (B=0.402), knowledge acquisition (B=0.124), knowledge storage (B=0.155), knowledge sharing (B=0.156), and knowledge application (B=0.140) are important for the OL. Figure 2 shows the structural model which also includes the results of the hypotheses.

Table 5. Result of hypotheses testing

Hypothesis	Path	B	Std.	T	P	Conclusion
H2	KM->OL	0.489	0.042	11.64	0.000	Supported
H3	Knowledge creation->OL	0.402	0.042	9.599	0.000	Supported
H4	Knowledge Acquisition->OL	0.124	0.044	2.847	0.005	Supported
H5	Knowledge storage->OL	0.155	0.041	3.763	0.000	Supported
H6	Knowledge sharing->OL	0.156	0.051	3.099	0.002	Supported
H7	Knowledge Application->OL	0.140	0.044	3.157	0.002	Supported

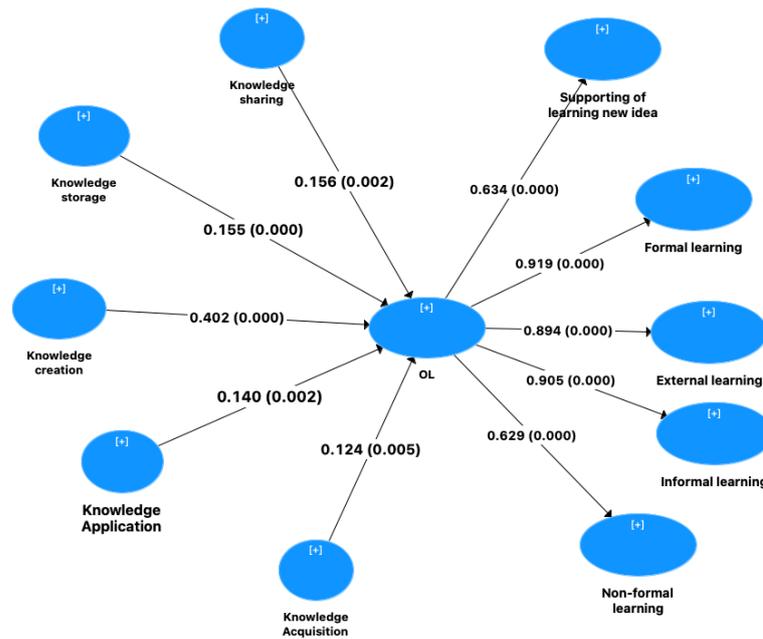


Figure 2: Structural model

7. DISCUSSION

This study examined the effect of KM and its components on OL. A significant correlation existed among the components of KM and OL. The result indicates that the highest correlation was between knowledge storage and informal learning followed by knowledge application and informal learning. The regression analysis showed that there is a significant relationship between KM and OL concerning inferential statistics results of the hypotheses (H2-H7). The finding aligned with the results of previous studies by [6], [7], [9]. Hence, the result of the hypotheses implies that KM can create a proactive OL progress for lifelong learning activities such as teaching, researching and supervision in Iraqi universities. By implementing the official KM system, the top management in Iraqi universities will have a comprehensive system to create continuous OL mechanisms that assure the required knowledge does not fade and can be interpreted formally. Thus, the top management should adopt and implement knowledge practices in their universities' environment as a formal system.

Significant relationships were identified between KM practices, namely knowledge creation, acquisition, sharing, storage and application, and OL (H3, H4, H5, H6, and H7). These results were aligned with the results of previous studies by [10], [11]. In addition, the results of testing the components indicate that the highest effect is between knowledge creation and OL, followed by knowledge sharing, knowledge storage, knowledge application and knowledge acquisition. This result aligned with previous studies by [31]–[33]. These results indicate that Iraqi universities are necessitating the deployment of systematic learning practices. The initiative is possible if Iraqi universities adopt KM practices that efficiently create, share, and apply knowledge. The study findings highly advocate that Iraqi universities' top management adopt KM practices in their daily academic and administrative activities to obtain standard OL activities. Top management in Iraqi universities is recommended to pay attention to the KM creation practices and encourage the knowledge sharing among staff. The management should develop and deploy more applications to make the required knowledge available for academicians and administrators to utilize in their daily working activities within the universities' environment.

8. CONCLUSION

This study aimed to investigate the relationships between KM and OL practices in Iraqi universities. The proposed model revealed the important effect of KM practices, namely knowledge creation, acquisition, sharing, storage, and application on OL. The study is limited to KM practices in academia, and it focused on academic and non-academic staff. Future studies are recommended to examine the KM practices in other industries. Further studies are also recommended to increase the sample size and include more variables such as the trust among academic and non-academic staff. Conclusively, this research could convince Iraqi

universities' top management to implement KM practices aligned with OL practices to assure dynamic lifelong mechanisms for basic daily activities such as teaching, learning, researching, and supervision. In addition, the top management should simultaneously develop formal learning mechanisms and KM applications to create, acquire, share, and apply the specific knowledge in the lifelong OL process that is utilized constantly.

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