Knowledge Management and Academic Performance: An Empirical Study of Iraqi HEIs

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ABSTRACT

This study examines the relationship between the processes of Knowledge Management (KM) and educational organization outcome in respect to academic performance. The study is based on a survey design and cross-sectional. The survey was conducted on 41 quality improvement-adoption colleges in Iraqi higher-education institutions (HEIs). The study hypotheses were tested through correlation and regression analyses. The results supported the main hypotheses for the study, suggesting that Iraqi HEIs can benefit from KM processes. Pearson's correlation pointed out that all processes of KM have significant correlations with academic performance measures. Regression analysis showed significantly positive relationships. In addition, statistical analysis also indicated that the KM processes should be implemented collectively rather than separately. In conclusion, this study provided insight and further understanding of the effect of KM processes on academic performance, and therefore, allows decision-makers to get in-depth knowledge about the impact of KM processes in Iraqi HEIs context.

Keywords: KM, academic performance, Iraqi HEIs.

I. INTRODUCTION

Throughout the world, organizations are facing a universal challenge consequentially from rapid changes in a new knowledge economy. Hence, organizations need to improve their activities in order to gain sustainable competitive advantages. Many organizations accept KM as a management paradigm worldwide in order to cope with the changing expectations of the organization (Yeh & Ta, 2005). Like other sectors, educational sector is also affected by the rapid changes in the business environment.

According to Amin (2006), profound changes resulting from the emerging competitive business environment have made HEIs and universities to think the same way like business organizations. Meanwhile, educational markets are becoming global. Based on this fact, ability to compete and stay in business under such a condition depends largely on how the changes and improvement are managed by academic institutions.

In our modern world popularly referred to as the information age, knowledge is the key resource in this era. The problem today is not how to find the information, but how to manage it; the most important challenge for organizations is how to process knowledge and to make it profitable in the recent knowledge-driven organization (Sallis & Jones, 2002). For this reason, organizations are viewing KM as a critical success factor in today's dynamic environment (Wong & Aspinwall, 2005; Yeh & Ta, 2005; Zack, McKeen, & Singh, 2009). Therefore, understanding the link between KM and organizational performance is important for successful integration of KM into organizational strategy (Carlucci & Schiuma, 2006).

KM is relatively a new discipline, derived from other various disciplines, including management, information system, business theory, organizational behavior and social psychology (Sallis & Jones, 2002). Like other disciplines, a number of important theorists and academics are influencing the direction and development of KM. In defining KM, there is a need to look at what knowledge itself is. Anantatmula (2007) revealed that the perspective of knowledge by organization in the current knowledge economy is that knowledge is viewed as the main economic resource, and it is seen as a weapon that can be used in gaining competitive advantage.

In HEIs context, Kidwell, Vander Linde and Johnson (2000) identified KM of great benefits in higher-education environment in research process, curriculum development process, student and alumni services, administrative services and business strategic planning. It can be found that the use of KM in higher education will have many direct benefits for academic achievements. However, KM has been applied to universities and colleges in the USA, UK, and in Asian countries such as Malaysia (Chen & Burstein, 2006; Kebao & Junxun, 2008; Muhammad, et al., 2011;

Sedziuviene & Vveinhardt, 2009; Yeh & Ta, 2005), and also in Iraqi HEIs. According to, Aljanabi (2007), KM in Iraqi HEIs is still a new concept, the higher-education sector responds positively to KM practices in institution level and individual level.

In the past, Iraqi higher education system was ranked the best in the Middle East and Gulf region not until after the economic sanction, when Iraqi HEIs suffered from a prolonged period of relative isolation due to the sanctions imposed by UN (UNESCO, 2008).

According to the International Conference on Higher Education in Iraq (2007), Iraqi universities have suffered more than necessary in terms of the curricula, resources, teaching methods, modern technology and research. It was emphasized that there is an urgent need to bring the lost glory to the Iraqi educational institutes. Unfortunately, there are very limited studies that touch KM and its effects on the educational-institutes performance. Moreover, most of these researches were conceptual and case studies.

II. PROBLEM STATEMENT

Even though KM concept is well known, scholars, practitioners, and others in the field of business management are still debating the concepts and definitions related to knowledge management (Martin, 2005). In general, little empirical research has been conducted to investigate the relationship between KM and performance (Kalling, 2003; Zack, et al., 2009).

In education context, Sallis and Jones (2002) emphasized, there is much need for KM in education as there is in business. If excellent achievements are achieved in one area of the colleges or universities, there should be a process for knowing how they were achieved. However, very few empirical studies have been focused on KM processes and its effect on academic performance specially, in the field of higher education (Muhammad et al., 2011).

Therefore, it became apparent to what was presenting that there is an acknowledged problem concerning the subject of KM processes in the educational institutions in general. In addition, KM program in terms of the form of implementation and the degree of importance are not clear. The failure of identifying the feature of implementation (individual or collective) and the degree of significance would lead to many deficiencies and ineffectiveness in reaching competencies for universities, if such processes overlooked. However, the major question that arises here and needs to be answered is: To what extent, do the processes of KM affect academic performance in the Iraqi HEIs?

III. RESEARCH IMPORTANCE AND OBJECTIVES

The importance of the study derives from the ability of determining the key processes of KM that affecting academic performance in the Iraqi universities. This understanding and empirical analysis would help decision-makers to work on weak processes to cope with and strength others for further improvements. Moreover, in line with the orientations of the Iraqi Ministry of Higher Education and Scientific Research (MHESR-I) about the academic performance improvement; this study tries to shed light on issues concerning the application of KM in Iraqi HEIs to overcome the barriers blocking the enhancement of academic performance. However, the study aims to:

- Enhance the understanding of KM processes and its importance in the higher-education context.
- Identify empirically the feature of implementation of KM processes in Iraqi HEIs.
- Test empirically the influence of KM processes on academic performance of Iraqi HEIs.

IV. LITERATURE REVIEW AND RESEARCH HYPOTHESES

A. KM Processes

KM has been defined in different ways and from different aspects; interestingly, no sole definition can explain the whole picture, as different authors viewed KM from a number of perspectives, which dictates the way they define it. However, according to Salis and Jones (2002), KM in education can be defined as such a tool that gives clues to managers and staffs of educational organizations on the emerging world of KM to meet the challenge of the knowledge era. KM helps educational organizations to realize the merits and beauty of knowledge creation and sharing as means of enhancing teaching and learning process.

From literature, the concept of KM is generally described based on a number of key processes of KM. Such processes have several interpretations; the term of *processes* is sometimes referred to as *activates* or *practices.* Whichever a way it is addressed, it still refers to the same thing which is the dimensions of KM and in this paper, the term "processes" is used, since it is a way to emphasize that these processes are essential and should work

together to improve the performance of an organization.

Various studies have addressed KM processes with a view to identify the key aspects/dimensions of KM processes. These dimensions include acquisition, innovation, protection, integration, and dissemination (Lee & Yang, 2000); acquisition, conversion, application, and protection (Gold, Malhotra, & Segars, 2001); development, utilization, and capitalization (Kalling, 2003); creation, accumulation, sharing, utilization, and internalization (Lee, Lee & Kang, 2005); identification, collection, organizing, storage, sharing, and evaluation (Kiessling, Richey, Meng, & Dabic, 2009). An examination of these diverse views enables the researcher to group them into five processes: identification, acquisition, storage, sharing, and application. These five processes have received the most consensus attention in KM literature (Daud & Abdul Hamid, 2006; Goldet al., 2001; Kiessling et al., 2009; Lee & Yang, 2000; Liao & Wu, 2009).

B. Academic Performance (AP)

Higher education today is subject to the same pressures of the marketplace. Profound changes in competition have made universities, and HEIs think like business to the extent that students are now being treated as customers. In addition, the stockholders' demands are getting more and more complex, which must be attended to whether the educational organization must maintain its competitive advantage (Amin, 2006). The HEIs then must ensure that the students receive high-quality service. HEIs have responsibility to produce graduates that are able to accommodate challenges emerging in society, such as graduates producing high-quality profile and competence in their respective profession (Suryadi, 2007).

HEIs are changing from a public service to a market-driven one (Kettunen, 2003), and HEIs now face pressing concerns such as international competition (Kebao & Junxun, 2008). For that reason, HEIs are faced with the need to improvement many of their existing management practices and attitudes. One of the current issues of significance is the need for performance management, particularly measurement of key performance indicators (Suryadi, 2007). It is believed that knowing such performance indicators will enable the organizations to achieve an acceptable level of AP.

According to Kanji and Tambi (1999), the performance indicators in HEIs can be measured based on objective's achievement; this has to do with how well core process (educational process) is operating. Therefore, since the study focus on HEIs context (public universities), the AP measurement takes into account students related academic achievement. In addition, many researchers highlighted students-academic achievement (such as CPA, classes of degrees, graduation rates…etc.) as key indicators of measuring AP (Agha, 2007; Johnes, 1996; Miller, 2007).

C. The Relationship between KM Processes and Academic Performance

KM has been investigated at business industrials; however, there have been very limited studies done to investigate KM processes at a public organization of higher-education level. The researchers found through the reviewed literature that there are some related studies**.** Based on these studies, the following dissection provides justification that KM processes influence AP.

Knowledge Identification (KID): Knowledge identification is an action of discerning the location and value of knowledge, restraints to knowledge flow, and opportunities to leverage the value of knowledge. Either looking at this perspective, knowledge can be identified by individual employees or organization (Darroch, 2005; Liao & Wu, 2009). Thus, this dimension refers to determine the knowledge gaps between the existing and needed knowledge (Hall & Andriani, 2002). According to Sarawanawong et al. (2009), identify the knowledge gap is necessary to support staff daily work successful. Thus, knowledge identification plays a key role in enhancing academic performance. In this regard, the following hypothesis is suggested:

H_1: knowledge identification has a positive relationship with academic performance.

Knowledge *Acquisition (KAC):* Once needed knowledge is identified, it has to be acquired for utilize. Thus, acquisition process is this oriented to obtain needed knowledge from both internal and external sources (Bouthillier & Shearer, 2002; Mohammad, Hamdeh, & Sabri, 2010). According to Lee and Yang (2000), there are two activities through which organization acquires knowledge, which are; searching and organization learning. Knowledge acquisition through searching can be achieved via three means such as scanning, focused research, and performance monitoring. Meanwhile, organization learning takes a fundamental part in knowledge acquisition since there is a need for organization to enhance its performance constantly.

As a result, knowledge acquisition is linked to academic performance, and a hypothesis is proposed:

H_2: knowledge acquisition has a positive relationship with academic performance.

Knowledge Storage (KST): It is generally believed that if knowledge is valuable, then storing such valuable assets should be given an utmost concern. After obtaining the required knowledge, it is expected to be coded and recorded to enable easy access to such knowledge (Kiessling et al., 2009). According to MBNQA (2004), academic performance measurement in HEIs should focus on students' achievement, which requires a comprehensive and integrated reliable-based system. This can be achieved through sound database and effective process of knowledge storage, which should provide reliable data. Hence, ever since knowledge storage affects academic performance, the following hypothesis is formed:

H_3: Knowledge storage has a positive relationship with academic performance.

Knowledge Sharing (KSH): Knowledge sharing involves the exchange of information and knowledge from one source (person, group or organization) to another (Lee et al., 2005; Liao & Wu, 2009). With effective KM processes, hidden knowledge can easily be discovered, and such process mostly facilitated via sharing. According to Liao and Wu (2009), knowledge sharing plays an intermediate role to support knowledge exchange in the organization and aids the achievement and sustenance of their competitive advantage. Therefore, in higher-education context, knowledge sharing as a vital pillar of KM is critical to academic performance (Daud & Abdul Hamid, 2006). It is clearly that knowledge sharing is greatly supported to improve academic performance. In this regard, the following hypothesis is proposed:

H4: Knowledge sharing has a positive relationship with academic performance.

Knowledge *Application (KAP):* Knowledge application concerns the process of using of knowledge that has been stored in organization. Within KM context, the concept of application has another interpretation, sometimes in literature where it is referred to as utilization. Many researchers stated that knowledge application process denoted actual utilization of the knowledge (Gold et al., 2001; Liao & Wu, 2009). Lee and Lee (2007) described knowledge application as the effective retrieval mechanisms that enable access to knowledge. The authors further revealed that the knowledge application is the actual process of knowledge retrieval and knowledge dissemination. This means knowledge application involves effective retrieval mechanisms that enable organization's members to access relevant knowledge. Undeniable, academic performance will be improved since the knowledge application is supported among educational partners. Consequently, the following hypothesis is formed:

H_5: Knowledge application has a positive relationship with academic performance.

V. RESEARCH METHODOLOGY

The main objective of this study is to investigate the relationship between KM processes and academic performance. In this study, KM processes are independent variables and academic performance is a dependent variable respectively. To measure the two constructs of importance of this study, the researchers adopted the items of instrument from relevant literature. The instrument was pre-tested and reviewed by 4 academicians (heads of departments. The participants were involved to evaluate the questionnaire in terms of readability, accuracy, and brevity of the instrument.

The study is based on a survey design and time horizon was cross-sectional. Since the objective of this study is to measure the actual level of each of the KM processes on academic performance in Iraqi HEIs, academic leadership (dean or assist dean) which was knowledgeable about organizational practices considered appropriate subject. The survey was carried out in 64 colleges, which provided undergraduate program. The colleges selected randomly from four public universities in Iraq.

The final number of participates for this study was 41 colleges. The sample size comprised about 63 percent of the total population. The study hypotheses were tested using correlation and regression analyses. The academic leadership as respondents were requested to focus on questions related to degree or extent of practices KM processes and academic performance in their organizations with items followed a 5-point scale ranging from 1 = strongly disagree to 5 = strongly agree.

In this study, the indicators for academic performance of HEIs context are: academic status (CPA), undergraduates' wastage rate, classes of degrees, graduation rates, and overall academic

achievements (Johnes, 1996; Lee & Buckthorpe, 2008; Miller, 2007). The respondents are required to answer the questions regarding their organizations perceived performance over the past three years in order to reduce the influence of temporary fluctuations in those AP indicators.

VI. DATA ANALYSIS AND RESULTS

In order to assess the goodness of the instrument measures, the instrument was subjected to the construct validity and reliability tests. The construct validity was evaluated by factor analysis with eigenvalues of at least 1.0, and factor loading of at least 0.40. Meanwhile, the reliability was evaluated by the coefficient of Cronbach's alpha with acceptable value of 0.7 and above (Hair, Black, Babin, & Anderson, 2010). Table 1 illustrates the results of validity and reliability for the latent constructs.

Table 1. Results of Validity and Reliability

1	2	3	4	5	6
Independent Variables					
KID	6	.685, .757, .809, .742, .807, .711	.825	65.9	.845
KAC	6	.781, .811, .738, .780, .696, .634	.818	55.1	.834
KST	5	.799, .816, .796, .747, .746	.797	61.0	.839
KSH	5	.743, .734, .680, .853, .814	.817	68.8	.821
KAP	7	.796, .810, .780, .742, .851, .617, .673	.874	65.8	.873
Dependent Variable					
AP	5	.715, .753, .817, .837, .759	.835	67.6	.833

Note: (1) Variable code; (2) No. of items; (3) Factor loading; (4) KMO; (5) % of Variance; (6) Cronbach's Alpha

Based on the displayed in the Table 1, the results indicate that factor loadings for all constructs were more than 0.4, and all constructs explain more than 50 percent of total variance. According to Pallant (2007), KMO value should be greater than 0.60. KMO values are greater than 0.60. Other than that, the Bartlett's test of sphericity was significant (α = 0.05). Moreover, the results also show that all values of Cronbach's alpha were greater than 0.70. In short, the instrument measures used in this study was valid and reliable.

Normality of the observed variables was evaluated through the examination of skewness and kurtosis values. None of the observed variables are significantly skewed or highly kurtosis. Meanwhile, all observed variables shown to be linearly related (via scatter plots). Moreover, using Mahalanobis distance, no apparent outlier was noticed. Table 2 shows results of Pearson's correlation among KM constructs. The entire KM processes correlate significantly with each other ($p \leq 0.01$).

In examining the correlation among the KM constructs, Table 2 indicates that all elements are positively associated with one another, and significant at α = .01, These positive associations tend to support the agreement that KM processes should be implemented holistically and comprehensively, not independently. Many researchers (Choy, 2006; Shankar & Gupta, 2005) have supported the concept of holistic approach of KM processes.

Table 2. Pearson's Correlation among KM processes

KM Processes	KID	KAC	KST	KSH	KAP
KID	1.000				
KAC	.637**	1.000			
KST	.679**	.530**	1.000		
KSH	.570**	.736**	.464**	1.000	
KAP	.597**	.759**	.519**	.782**	1.000

*p*** Correlation is significant at the 0.01 level

Table 3 exhibits the correlation of KM processes with academic performance variables KM processes show moderate to strong correlation with academic performance. Meaning that, all the KM processes are highly significant with academic performance.

Table 3. Correlation between KM Processes and AP

KM Processes	KID	KAC	KST	KSH	KAP
AP	.679**	.763**	.572**	.767**	.811**

*p*** Correlation is significant at the 0.01 level

Table 4 demonstrates the multiple regression analysis between KM processes and academic performance measures. The analysis results show that strong relationships existed as hypothesized. Meanwhile, the regression model has moderately high adjusted R^2. Furthermore, the regression analysis result also revealed significant F value at 0.01 level.

Table 4. Multiple Regression between KM Processes and AP

KM Processes (IV)	Academic Performance (DV)				
	Beta	Std. Error	Std. Beta	t	Sig.
(Constant)	1.062	.358		2.964	.003
KID	.000	.091	.000	.003	.498
KAC	-.115	.112	-.098	-1.030	.105
KST	-.092	.079	-.093	-1.168	.245
KSH	.275	.110	.238	2.500	.013
KAP	.249	.118	.214	2.117	.036
R^2			.496		
Adjusted R^2			.475		
Significance of F			.000		

Nevertheless, based on the results in Table 4, multicollinearity was appeared. This is on line with many researches position (Lim, Rushami, & Zainal, 2004; Miles & Shevlin, 2001). The regression model has one or more standardized regression coefficients taking on negative values when common sense and correlation analysis suggest a positive relationship exist between the independent and dependent variables (see Table 3 and Table 4). Many of the estimated coefficients are insignificant despite the F value is significant. The strong correlation among KM processes ($0.464 \leq r \leq 0.782$) also proposing the presence of multicollinearity (see Table 2). According to Pallant (2007), multiple regression doesn't like multicollinearity; and this definitely doesn't contribute to a good regression model.

There are several techniques that researchers can utilize to reduce the effect of multicollinearity (Hair, et al., 2010). In this study, the Principal Component Analysis (PCA) was employed to handle multicollinearity. The results of PCA indicated that the first principal component of KM processes explained 63.50 percent of the total variance of the KM processes. KM variables were analyzed collectively principal component scores of KM variables were retrieved (Agus, 2000; Lim et al., 2004). A simple linear regression analysis was later carried out between academic performance and the first saved of principal component scores of KM processes as exhibits in Table 5.

Table 5. Simple Regression between Principal Component Scores of KM Processes and Academic Performance

Model	Beta	Std. Error	Std. Beta	t	Sig.	R^2
Constant	.940	.325		2.890	.004	
Regression IV = KM DV = AP	.261	.028	.573	9.174	.000	.293 *

The results of simple regression analysis in Table 5 indicate that KM variables have a significant relationship with academic performance measures. Regression coefficient of the regression model is statistically positive and significant at $\alpha = 0.05$. Thus, the researcher includes that KM processes (collectively) have a significant relationship with academic performance. In brief, data analysis results provide sufficient evidence to support all five alternative hypotheses.

VII. SUMMARY AND CONCLUSION

Notwithstanding the significant affinity that exists between KM and performance, empirical research on the link between KM processes and AP has hardly been touched, especially in HEIs context (Mohammad et al., 2010). Considering the study's domain, this study attempts to narrow the gap in literature, particularly in developing countries. The purpose of this study is to examine the relationship between KM processes and academic performance within Iraqi HEIs. In this study, it is found that HEIs can benefit from KM processes. The findings also revealed that KM processes are significantly and positively correlation with academic performance. Implementation of KM is crucial since the processes are found to have a significant positive impact on academic performance. Stress should be given to knowledge identification, knowledge acquisition, knowledge storage, knowledge sharing, and knowledge application. The findings also provide empirical evidence of the imperative of implementing of KM processes holistically rather than separately.

Currently, many Iraqi HEIs have been implementing knowledge management initiatives, in order to improve their performance and obtain a sustainable competitive advantage. In this regard, the current study serves as a guide to practitioners, who seek to improve academic performance and capturing the particular knowledge via KM program. Finally, the researcher hoped that this study would encourage or at least motivate attention towards further research in domain area as more research on this subject is required.

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