



Contents lists available at ScienceDirect

The Journal of Academic Librarianship



Knowledge Management as a Predictor of Organizational Effectiveness: The Role of Demographic and Employment Factors

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ARTICLE INFO

Article history:

Received 15 February 2015

Accepted 19 August 2015

Available online xxxx

Keywords:

Knowledge management
Organizational effectiveness
Higher education
Libraries
Qatar

ABSTRACT

This paper seeks to examine how the demographic and employment-related factors affect the knowledge management process in higher educational libraries in Qatar. The study is based on a wider research conducted to determine the relationships between organizational culture and knowledge management. The survey covered 122 employees from 16 higher educational libraries in Qatar. A descriptive and quantitative research design was employed to determine the significance of difference in knowledge management activities with respect to demographic and employment-related factors of the respondents. The results of the study revealed that knowledge management activities are not affected by the demography of the respondents. However, it is affected by employment-related factors especially in the type of institutions. The findings are significant and have implications for library directors, especially those from government institutions who need to take necessary measures in order to succeed in knowledge management efforts and achieve organizational effectiveness.

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INTRODUCTION

Knowledge management is a process that helps organizations find, select, organize, disseminate and transfer important information and expertise necessary for activities such as problem solving, dynamic learning, strategic planning and decision making (Gupta, Iyer, & Aronson, 2000, p 17). Although there is no single clear definition for organizational effectiveness, it is widely perceived as the efficiency with which an organization or establishment is able to meet its aims and objectives (Quinn & Rohrbaugh, 1981). Denison (1997, p. 31) describes that organizational effectiveness involves five important elements such as leadership, decision making, systems, processes and the culture within an organization. Several researches have established a strong connection between knowledge management and organizational effectiveness and shown how various factors like culture, leadership, systems and processes affect the effectiveness of an organization (Cameron, 1980; Cameron & Quinn, 1999; Grusky, 1963; Jian & Triandis, 1997; Lee & Choi, 2003; Price, 1972).

Higher education in Qatar is driven by public and private universities established by both the government of Qatar and foreign universities that have established branch campuses. Qatar is also one of the countries in the region with a large expatriate population. When employees leave a job, they take away valuable knowledge about the systems and

procedures that they had established and core technical knowledge with them. Knowledge management offers the best solution to mitigate problems and manage tacit knowledge more effectively. Nonetheless, the education sector in general and libraries in particular have failed to take advantage of the benefits of knowledge management. A review of the literature did not yield any results of a study that has been conducted in this field especially in Qatar. In hindsight, a research was conducted in October 2013 to examine the relationship between organizational culture and knowledge management activities in higher educational libraries in Qatar, using Competing Values Framework, to determine the various factors and their effects on knowledge management. The current paper fills the crucial gap in the literature by presenting the results of the study. It tries to find if the demographic and employment related factors of employees working in higher educational libraries in Qatar affects knowledge management processes.

KNOWLEDGE MANAGEMENT & ORGANIZATIONAL EFFECTIVENESS

Knowledge management (KM) is basically process based and there are two major aspects of this process – information management and people management. Viewed from this perspective, knowledge management is about information, on one hand, and people, on the other. Although information management is manageable, it is most challenging to manage people, especially when it involves the management of tacit knowledge that resides inside the heads of people. In the beginning, knowledge management was placed mostly in the information

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technology domain, and the emphasis was knowledge-based systems, tools and techniques (Grover & Davenport, 2001). It was after many of these initiatives failed that researchers started to look at the other side of knowledge management (Grover & Davenport, 2001; Kouloupoulos & Frappaolo, 2000). Researchers have now come to agree that knowledge management is more than mere storage and manipulation of information, but a process that requires the commitment to create and disseminate knowledge through the organization (Marshall, Prusak, & Shpilberg, 1996; Parikh, 2001).

Since tacit knowledge is highly individualized, the degree and facility by which it can be shared depends to a great extent on the ability and willingness of the person possessing it to convey it to others (Uriarte, 2008). Yet, the success of knowledge management and organizational effectiveness depends immensely on people willing to share tacit knowledge.

Organizational effectiveness is “the degree to which an organization realizes its goals” (Daft, 1995). Attaining a high level of organizational effectiveness will be the ultimate aim of any organization. Organizational effectiveness involves people's perceptions of how effective an organization is in pursuing its goals (McAdam & Bailie, 2002). Knowledge management has been regarded as contributing to enhancing organizational effectiveness.

PROBLEM STATEMENT

Qatar has a large expatriate population, and many of them lend their expertise to establish top class libraries. When employees leave a job, they take with them valuable knowledge about the systems and procedures that they had established and core technical knowledge. Organizational effectiveness is a process of fundamental change in an organization's culture. With a large population of expatriates in the higher educational libraries, cultural transformation takes place when people leave or take up jobs, which in turn, affects the organizational effectiveness. Understanding the relationship between the various factors that affect knowledge management is crucial in bringing about organizational effectiveness.

METHODOLOGY

The study used a descriptive & quantitative research design. The survey population includes all the employees of higher educational libraries in Qatar that are grouped under three categories. The first group is “Qatar Foundation” which is a non-profit organization that has many foreign universities within its campus; the second group includes private universities again from other countries but out of the ambit of Qatar Foundation and the third group is the state sponsored government universities and institutions. At the time of the survey, there were 20 higher educational libraries affiliated with various universities & institutions in Qatar and 195 full-time employees worked in these libraries. All the 195 employees were taken as a sample, and an electronic questionnaire was designed in the website SurveyMonkey.com and sent to them. A total of 136 responses from 16 higher educational libraries were received, out of which 14 responses were either incomplete or did not begin the survey at all, and hence, they were dropped. No responses were received from 4 libraries leaving 122 fully completed usable responses for analysis at a return rate of 62%.

The questionnaire consisted of two instruments, a knowledge management assessment instrument (KMAI) developed by Sheron Lawson (2003) and an organizational culture assessment instrument (OCAI) developed by Cameron and Quinn (1999). The respondents were asked to give their assessment on how they related to each of the statements in the questionnaire to their library. The responses were then exported to SPSS statistical package for analysis. Both the instruments used a five-point Likert scale to measure the responses, with 5 being ‘strongly agree’ and 1 ‘strongly disagree.’

The following null hypotheses were tested and analyzed.

NH₀₁. There is no significant difference between knowledge management and the employees' demography in higher educational libraries in Qatar.

NH₀₂. There is no significant difference between knowledge management and employment related factors of the employees in higher educational libraries in Qatar.

ANALYSIS & RESULTS

The research hypotheses were tested and analyzed using quantitative research methods. Quantitative analysis provides the means to distinguish and separate a large number of confounding factors that often obscure the main qualitative findings. It also allows the reporting of summary results in numerical terms to be given with a specified degree of confidence (Abeyasekera, 1997).

The demographic details from Table 1 reveal that more than half of the respondents (68.9%) were women, and less than half of them (31.1%) were men. A little less than half of the respondents (44.3%) were in age group 40–49, and a little over one-fourth (27%) were in age group 31–39. 11.5% of them were in the age group of 50–59, and 9.8% were in the age group of 30 years or less while 7.4% were 60 years or older.

It is also clear that more than 50% of the respondents (61.5%) had a master's degree while less than one-fourth of them (23%) had a bachelor's degree. A mere 5.7% of the respondents had an associate's degree and high school diploma, and 4.1% of the respondents had a doctorate. It is also clear that a mere 13.1% of the respondents were nationals and more than three-fourths of the respondents (86.9%) were expatriate employees.

It is clear from Table 2 that a majority of the respondents (32.8%) were from the middle management that includes the librarians, followed by a little over one-fourth of them (29.5%) from the technical staff that included the library technicians and library specialists. Less than one-fourth of them (18.9%) were support staff and 12.3% of them from senior management that includes the Assistant/Associate Directors of libraries. A meager number of respondents were from the top management (6.6%) which includes the Library Directors or head of the libraries.

Regarding job tenure of the employees, it can be said that close to half of them (44.3%) had 6–15 years of experience followed by over one-fourth of the respondents (30.3%) with 5 or lesser years of experience. A fewer number of employees (13.9%) had 25 or more years of experience, and a mere 11.5% of the employees had 16 to 24 years of professional experience.

Regarding institution type, more than half of the respondents (59%) were from higher educational libraries based in Qatar Foundation.

Table 1
Demography — gender, age, education and nationality.

Variable	Description	Frequency	Percentage
Gender	Male	38	31.1
	Female	84	68.9
Age	30 or less	12	9.8
	31–39	33	27.0
	40–49	54	44.3
	50–59	14	11.5
	60+	9	7.4
	High school diploma	7	5.7
Education	Associate's degree	7	5.7
	Bachelor's degree	28	23.0
	Master's degree	75	61.5
	Doctorate	5	4.1
Nationality	National	16	13.1
	Expatriate	106	86.9

Table 2
Demography – hierarchy, job tenure, and institutional type.

Variable	Description	Frequency	Percentage
Hierarchy	Top management	8	6.6
	Senior management	15	12.3
	Middle management	40	32.8
	Technical staff	36	29.5
	Support staff	23	18.9
Job tenure	5 years or less	37	30.3
	6–15 years	54	44.3
	16–24 years	14	11.5
	25 years and above	17	13.9
Institutional type	Qatar Foundation	72	59.0
	Private	22	18.0
	Government	28	23.0

While a little less than one-fourth of them (23%) were from the state university or institution, a mere 18% of the respondents were from private or independent university/institutional libraries.

TESTING FOR SIGNIFICANCE OF DIFFERENCES BETWEEN GROUPS

To test for the significance of differences between groups, a t-test and one-way ANOVA were used to ascertain if there was any significant difference in knowledge management and its dimensions with respect to i. demography – gender, age, education and nationality of the respondents, and ii. employment factors – hierarchy, job tenure, and institutional type. The relevant null hypotheses (NH₀₁ and NH₀₂) were tested and the results are presented below.

TESTING OF SIGNIFICANCE – (DEMOGRAPHY GENDER, AGE, EDUCATION AND NATIONALITY)

T-test (independent samples t-test) was applied to ascertain if any significant differences existed between knowledge management and the respondents' gender and residency. Differences in knowledge management and its dimensions with respect to age groups and education were determined by statistically applying ANOVA. Where the ANOVA results revealed a significant difference between groups, the same has been further analyzed using a post-hoc test and Tukey's Honestly Significant Difference (HSD) Test.

The results of the t-test suggest that the mean score of knowledge management of male respondents is 81.29, and that of female respondents is 82.67; with female respondents having a higher mean score than their male counterparts. However, the t-value of -0.49 is statistically not significant as the p value is 0.63 which is greater than the recommended 0.05 ($p < 0.05$). The non-significant result implied that the knowledge management scores did not vary based on gender and the difference in the mean score is not real where $t(81.64) = -0.49$ and $p > 0.05$. Hence, it is concluded that there is no significant difference in the mean scores of knowledge management across the gender groups.

The results of the one-way ANOVA test reveals that the mean score of knowledge management is high with a value of 86.91 among those respondents whose age group is between 31 and 39 and low among those in the age group of 30 or less with a mean value of 73.75. The F value is 2.42 and the p value is 0.053 ($p > 0.05$) which denote that they are not significant since $F = 2.42$ and $p > 0.05$. It is therefore concluded that there is no significant difference in the mean scores of knowledge management across the various age groups.

The results of the one-way ANOVA test reveals that the mean score of knowledge management is high with a value of 88.39 among those respondents with a bachelor's degree and low among those with a high school diploma with a mean value of 76.57. The F value is 0.81, and the p value is 0.52 ($p > 0.05$), which denote that they are not significant since $F = 0.81$ and $p > 0.05$. It is, therefore, concluded that there is

Table 3
T-test results for knowledge management based on respondent's gender.

Variables	Gender	N	Mean	Standard deviation	t Value	Degree of freedom	P value
Knowledge management	Male	38	81.29	13.10	-0.49	81.64	0.63
	Female	84	82.67	15.09			
	Female	84	13.32	2.92			

no significant difference in the mean scores of knowledge management across the various education groups.

The result of the t-test shows that the mean score of knowledge management of national respondents is 81.25, and that of the expatriate respondents is higher with a value of 82.39. The t-value of -0.29 is statistically not significant as the p value is 0.77, which is higher than the recommended 0.05 ($p < 0.05$) level, which implies that the knowledge management scores did not vary based on the residency since $t(19.60) = -0.29$ and $p > 0.05$. It is, therefore, concluded that there is no significant difference in the mean scores of knowledge management across the nationality groups.

ANALYSIS OF HYPOTHESIS NH₀₁

NH₀₁. There is no significant difference between knowledge management and the employees' demography in higher educational libraries in Qatar.

Demographic characters such as gender, age, education and nationality were tested for significant differences. Applying the t-test and ANOVA results to Tables 3 to 6, the significance value for the results of both the test for knowledge management is greater than 0.05. Hence null hypotheses NH₀₁ is accepted and it is concluded that there is no significant difference in the mean scores of knowledge management based on the demography of the employee (gender, age, education and nationality) in higher educational libraries in Qatar. See Tables 4a–5b

TESTING OF SIGNIFICANCE – EMPLOYMENT RELATED FACTORS

Differences in knowledge management with respect to employment-related factors like hierarchy, job tenure, and institutional type were determined by statistically applying ANOVA. Where the ANOVA results revealed a significant difference between groups, the same has been further analyzed using a post-hoc test and Tukey's Honestly Significant

Table 4a
One-way ANOVA test results for knowledge management based on age.

Variables	Age	N	Mean	Standard deviation	F value	P value
Knowledge management	30 or less	12	73.75	15.95	2.42	.053
	31–39	33	86.91	13.47		
	40–49	54	80.83	12.53		
	50–59	14	85.71	13.03		
	60+	9	79.44	22.98		
	Total	122	82.24	14.45		

Table 4b
Summary of ANOVA results.

Variables	Source of variation	Sum of squares	Degrees of freedom	Mean square	F value	P value
Knowledge management	Between groups	1930.550	4	482.637	2.42	.053
	Within groups	23,363.557	117	199.689		
	Total	25,294.107	121			

Table 5a

One-way ANOVA test results for knowledge management based on the education of the respondents.

Variables	Educational qualification	N	Mean	Standard deviation	F value	P value
Knowledge management	High school diploma	7	76.57	20.08197	0.81	0.52
	Associate's degree	7	88.29	13.41286		
	Bachelor's degree	28	83.39	12.87069		
	Master's degree	75	82.15	14.36276		
	Doctorate degree	5	76.60	18.56879		
	Total	122	82.24	14.45829		

Table 5b

Summary of ANOVA results.

Variables	Source of variation	Sum of squares	Degrees of freedom	Mean square	F value	P value
Knowledge management	Between groups	677.698	4	169.46	0.81	0.52
	Within groups	24,616.408	117	210.40		
	Total	25,294.107	121			

Difference (HSD) Test. One-way ANOVA tests were done to examine if there were any significant difference between knowledge management and the type of institutions of the respondents (Tables 7a and 7b).

The analysis of the data in the above tables reveals that the mean score of knowledge management is higher with a value of 87.50 among respondents from top management and lower with a value of 76.93 among the respondents from middle management. The F value is 2.37 and the p value is 0.06 ($p > 0.05$), which indicate that they are not significant since $F = 2.37$ and $p > 0.05$ (Tables 8a and 8b).

Table 6

T-test results for knowledge management based on the nationality of the respondents.

Variables	Nationality	N	Mean	Standard deviation	t Value	Degree of freedom	P value
Knowledge management	National	16	81.25	15.41	-0.29	19.60	0.77
	Expatriate	106	82.39	14.38			

Table 7a

One-way ANOVA test results for knowledge management based on hierarchy.

Variables	Hierarchy	N	Mean	Standard deviation	F value	P value
Knowledge management	Top management	8	87.50	8.71780	2.37	.06
	Senior management	15	86.60	10.49354		
	Middle management	40	76.93	16.40573		
	Technical staff	36	84.89	11.03961		
	Support staff	23	82.65	17.27481		
	Total	122	82.24	14.45829		

Table 7b

Summary of ANOVA results.

Variables	Source of variation	Sum of squares	Degrees of freedom	Mean square	F value	P value
Knowledge management	Between groups	1892.959	4	473.24	2.37	0.06
	Within groups	23401.148	117	200.01		
	Total	25294.107	121			

Table 8a

One-way ANOVA test results for knowledge management based on job tenure.

Variables	Source of variation	Sum of squares	Degrees of freedom	Mean square	F value	P value
Knowledge management	Between groups	145.513	3	48.50	0.23	0.88
	Within groups	25148.594	118	213.12		
	Total	25294.107	121			

Table 8b

Summary of ANOVA results

Variables	Total work experience	N	Mean	Standard deviation	F value	P value
Knowledge management	5 years or less	37	82.62	16.23842	0.23	0.88
	6–15 years	54	82.13	12.49007		
	16–24 years	14	84.29	11.86092		
	25 years & above	17	80.06	18.63958		
	Total	122	82.24	14.45829		

The one-way ANOVA test reveals that the mean score of knowledge management is higher with a value of 84.29 among those respondents that have 16–24 years of job tenure and lower with a value of 80.06 among the respondents whose job tenure is 25 years & above. The F value is 0.23 and p value is 0.88 ($p > 0.05$), which denote that they are not significant since $F = 0.23$ and $p > 0.05$. It is therefore concluded that there is no significant difference in the mean scores of knowledge management and its dimensions across the various job tenure groups (Tables 9a, 9b and 9c).

Table 9a

One-way ANOVA test results for knowledge management based on type of institution.

Variables	Institutional group	N	Mean	Standard deviation	F value	P value
Knowledge management	Qatar Foundation	72	84.49	14.13715	12.07	0.00
	Private	22	88.27	5.97759		
	Government	28	71.71	15.01569		
	Total	122	82.24	14.45829		

Table 9b

Summary of ANOVA results.

Variables	Source of variation	Sum of squares	Degrees of freedom	Mean square	F value	P value
Knowledge management	Between groups	4266.043	2	2133.02	12.07	.00
	Within groups	21,028.064	119	176.71		
	Total	25,294.107	121			

Table 9c

Results of the post-hoc test (Tukey's HSD).

Dependent variable	(I) Institutional group	(J) Institutional group	Mean difference (I–J)	Std. error	Sig.
Knowledge management	Qatar Foundation	Private	– 3.78662	3.23827	0.47
		Government	12.77183*	2.96061	0.00
		Qatar Foundation	3.78662	3.23827	0.47
	Government	Qatar Foundation	16.55844*	3.78722	0.00
		Qatar	– 12.77183*	2.96061	0.00
		Private	– 16.55844*	3.78722	0.00

* The mean difference is significant at the 0.05 level.

The results of the one-way ANOVA test reveals that the mean score of knowledge management is higher (88.49) among respondents from Qatar Foundation institutions and low (71.71) among the respondents from government institutions. The F value is 12.07 and the p value is 0.00 ($p < 0.05$), which indicates that they are significant since $F = 12.07$ and $p < 0.05$. Based on Tukey's HSD, it is found that the mean difference is significant at 0.05 level for the categories Qatar Foundation and government institutions. Similarly, significant differences were evident between private and government institutions. It is therefore concluded that there is a partial significance in the mean scores of knowledge management between the various types of institutions.

ANALYSIS OF HYPOTHESIS NH_02

NH_02 . There is no significant difference between knowledge management and employment related factors of the employees in higher educational libraries in Qatar.

Employment-related factors such as hierarchy, job tenure and institutional type of the respondents were tested for significant differences. Deciphering the results of the ANOVA test for all these variables reveal that the significant values for knowledge management are greater than 0.05 for the groups hierarchy and job tenure. However, the significant values for knowledge management were lesser than 0.05 for type of institution, especially government institutions where $F = 12.07$ and $p < 0.05$. It is therefore concluded that there is no significant difference in the mean scores of knowledge management and the employment-related factors with respect to the hierarchy and job tenure of the respondents but significant differences exist with respect to the type of the institution especially in government institutions. Hence, the null hypothesis NH_02 is partially accepted with the exception of government universities/institutions.

DISCUSSIONS

The results of the study, in a nutshell, reveal that knowledge management activities are not affected by gender, age, education or nationality. It is also not affected by the hierarchy and the job tenure of the respondents. However, it is affected only in one of the categories of the employment factor i.e. the type of institutions and that too in government institutions. It means that knowledge management activities are likely to be affected in government institutions and thereby affecting the organizational effectiveness. The result is similar to other studies conducted by Cameron & Quinn (2011) and Kangas (2005). Cameron and Quinn (2011) explain that knowledge management is most likely to be unsuccessful in a government organization because of the strict hierarchical structure of the organization. The flow of information is always structured and does not freely flow from top to bottom or vice-versa and hence the failure. The organizational culture of such organizations have to be diagnosed and appropriate decisions and steps have to be taken to change the culture that would support knowledge management success which in turn enhances organizational effectiveness (Cameron & Quinn, 2011).

This study was conducted at the national level and hence the results have national implications for library directors and administrators. The results suggest that strategic decisions have to be taken in government institutions to bring about the right conditions so the organizational effectiveness can be achieved. Future research can be done to identify the factors that affect the success of knowledge management practices in the higher educational libraries in Qatar. Similarly, other important constituencies of organizational effectiveness such as leadership and decision-making structures of colleges and universities and the relationships among the variables should be examined for those groups to see how they vary.

SUGGESTION

The research shows that knowledge management has been successful in the private universities and universities under the ambit of Qatar Foundation and is unsuccessful in government run universities. The organizational culture of the government universities and institutions has to be diagnosed and if it turns out that effective outcomes vary in certain predictable ways from one culture to another, then library directors and administrators could try and strengthen these or take strategic decisions that will lead to a change in the desired culture types. This will in turn improve the knowledge management scores for these universities.

Because of the high floating expatriate population, it is in the best interest of higher educational libraries to apply knowledge management practices using simple tools like wikis, blogs or other software. Pertinent knowledge in establishing the systems, procedures and problem solving techniques should be captured, organized, stored and made readily available to all the stakeholders. This will improve the knowledge management scores of the libraries and enhance their organizational effectiveness.

LIMITATIONS OF THE STUDY

One of the major limitations of the study is the floating population of expatriates in and out of the country, and hence there is a possibility of change in the perceptions when people change. Another limitation is that knowledge management basically involves human beliefs and behavior; since the study is about employees' perception and beliefs, these could change over a period of time with changes in organizational policies and people. Hence similar research should be done in a periodical interval to see the changes.

CONCLUSION

The dynamics of work culture changes dramatically with changes in people at the helm. This makes it all the more important to not only manage knowledge but tap the pertinent tacit & organizational knowledge of the employees. Library directors and managers in higher educational libraries in Qatar should start to think of innovative ways to capture, organize, store and use employee's knowledge to augment organizational effectiveness. As Qatar moves from a hydrocarbon-based economy to the knowledge economy, responsibility is placed on managers to understand knowledge management systems and practices in order to bring about organizational effectiveness and success.

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