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*****Corresponding author**.
 Hamad AlBadri

College of Business, MIS, University of Jeddah, Jeddah, Kingdom of Saudi Arabia
halbadri@uj.edu.sa

Based model: Using knowledge management to enhance information technology training outcomes among markets requirements

Hamad AlBadri[1]*, **Ashraf Badawood**[1]

1 College of Business, MIS, University of Jeddah, Jeddah, Kingdom of Saudi Arabia

Abstract

Background: The present research paper considers the use of knowledge management (KM) to enhance Information Technology training outcomes based on markets requirements, with particular focus on Gulf region. **Method:** Two key research questions would be answered in the paper, they are: what are the findings of the previous studies on role of knowledge management in supporting successful training outcomes, especially in Gulf region? What model, based on knowledge management concepts, can be used to enhance Information Technology training outcomes particularly in the Gulf region? **Findings:** To draw conclusions, a critical analysis was performed through comparing and contrasting the findings from observations of previous research and the scarce secondary data contained within the scientific sources. To ensure that KM is distributed in the Gulf countries rather than being centralized in certain organizations, a distributed model of knowledge management is proposed. This is based on a realization that different kinds of knowledge bear different KM implications. **Improvements/Applications:** The model encompasses best practices for knowledge creation, for knowledge sharing and for knowledge retrieval, which most of the reviewed studies identified as being important for enhancing Information Technology training outcomes in the Gulf region.

Keywords: Knowledge management; Model; Information Technology; Training outcome; Gulf region

1 Introduction

Over the last two decades, the concept of knowledge management has gained increased attention and visibility. Knowledge management has been defined as 'the art of transforming information and intellectual assets into enduring value for an organization's clients and its people'. A key objective of knowledge management (KM hereafter) is ensuring that the appropriate people have the appropriate information at the appropriate time, to enable people share insights and experiences, as well as improve the team productivity[1]. When talking about knowledge, previous scholars have distinguished between two kinds of knowledge: explicit knowledge which is the captured data, figures and facts such as those contained in the organization's financial reports; and tacit

knowledge that is acquired through education and experience over time, and which exists only in the minds of people. Whereas explicit knowledge can be managed in physical formats such as the organization's databases and repositories, tacit knowledge can be managed by creating expert networks, where organizations can easily locate experts who would assist them in achieving certain objectives [2]. Authors have shown that investing in KM can have benefits to the organization, by stimulating collaboration, increasing efficiency, preventing knowledge outflow, improving decision making, improving policy making, fostering innovation, improving reputation, and increasing job satisfaction [1,3–5].

Information Technology (IT) has become prevalent in today's society, and has been embedded in most organizational functions ranging from broader applications like communication to more specific applications such as supply chain management. However, not everyone at the organization is always proficient in IT, and the constant evolution of IT means that the employees have to constantly take part in upskilling. A recent survey conducted in 2016 by PriceWaterhouse Coopers (PWC) showed that employees in organizations are struggling to keep up with the constantly changing IT standards and developments, and only 52% of the organizations surveyed rated their IT proficiency (referred to as 'Digital IQ' in the report) as 'strong'. As IT continues to advance and evolve, many employees may not be ready for whatever change is coming next.

The present research paper considers the use of knowledge management to enhance Information Technology training outcomes among market requirements, with particular focus on Gulf region.

2 Research problem

According to a recent report by McKinsey & Company [6], organizations use massive amounts of resources and time in training their employees. However, the organizations generally have no idea whether they are getting business value from such trainings. A successful outcome of such training is normally considered to be completion of course by employee, instead of evaluating whether such employees has new knowledge or can access and tap into the knowledge that is widespread at the organization. For example, whereas outcome of IT training course to suit market needs can be improved by real world practice such as internship, it is not common for KM to be used for improving the outcomes of the IT training course, despite the aforementioned benefits of KM such as improved collaboration and efficiency. Moreover, there is a scarcity of research based on the Gulf region regarding the role of KM to enhance IT training outcomes among market requirements [7]. This research problem also presents the research gap and presents a model for the use of knowledge management in the enhancement of Information Technology training for better outcomes based on markets requirement, with particular focus on Gulf region.

To achieve the aim, two key research questions would be answered in the paper:

● What are the previous study findings on role of knowledge management in supporting successful training outcomes, especially in Gulf region?

● What model, based on knowledge management concepts, can be used to enhance Information Technology training outcomes particularly in the Gulf region?

3 Significance

The research is significant as the number of existing, related studies on the topic is scant. Moreover, there is a severe scarcity of similar research that have concentrated on the Gulf region, as most of the closely related studies focus on other regions such as Western Europe and North America [8]. The outcomes of the present research would be of immense benefit to not only the knowledge management and IT professionals in the Gulf countries, but also to organizational heads and training consultancy firms. The findings and recommendations proposed in the study would be beneficial not only to practitioners, but to academics based on the Gulf who would use the findings and recommendations as a basis for conducting further research on the topic.

4 Limitation

As it would not be practical or convenient for the researcher to visit all the countries making up the Gulf region to collect primary data, the research questions are conveniently answered by conducting secondary research. However this presents a major limitation of the research, stemming from its reliance on secondary sources of data. Use of secondary sources means that the researcher does not have control over the research methods that were applied in the original studies.

5 Operational Definition

In gathering secondary data for the research, it is critical to define the data collection procedure. Data that has been poorly defined risks being subjected to erroneous reporting and inconsistency. Applying the operational definition ensures consis-

tency, removes ambiguity and minimizes the chances of errors occurring during the research process[9]. The task in the present research is to study the use of knowledge management to enhance Information Technology training outcomes among markets requirements. For that reason, the attributes in the research are:

Interest: The use of knowledge management to enhance Information Technology training outcomes among market requirements

Measuring instrument: The researcher would personally collect data from the scientific sources that are available in the university library and also available online.

Test method: Data would be collected from at least twenty-seven scientific sources published post 2015. The published sources would be contained in journal articles from appropriate peer-reviewed journals, industry reports, conference proceedings and books.

Decision criteria: To use only published data. Unpublished data contained in manuscripts would not be used. The twenty seven scientific data sources would be examined, and observable secondary data that touches on aspects of research topic would be utilized in the present study.

6 Previous Studies

KM is a relatively new concept in the Middle East, particularly in the Gulf region, as it has been transferred to the Gulf by KM professionals mostly from the western societies like Britain and the United States of America[8]. The delay of development of KM in the Middle East has been attributed to economic and political bottlenecks that have covered the Middle East societies over the previous decades, such as the periods of the Gulf War and the Arab uprisings later[10]. Today, the Middle East is split into sub-regional groups having notable differences in terms of cultures, practices and resources. Tummapudi[11] observes that as result of such differences, KM has not been given much consideration. The research by Kassab (2016) explored the KM practices and the challenges in the Middle East. One cultural challenge noted was the over-reliance on social networks and their links to work connections, referred to as 'wasta'. In some instances, wasta is thought of as being used to unfairly give some unqualified people advantages at the workplace, at the expense of more qualified people (Harbi, Thursfield and Bright, 2017). As such, a large number of employees are recruited into unsuitable positions, and these include the knowledge-related positions[12]. However, somehow conflicting results on the significance of culture were observed, who noted that whereas culture was an important factor for KM, it was not necessarily an over-riding factor[13].

Other research has pointed out that a challenge faced by entities when implementing KM programs in Gulf regions like Dubai is that most employees in the public sector find the KM concept to be vague and unclear[14]. This phenomenon could be because KM has only been recently introduced in Middle East, thus requires more time to be pervasive in the region and become a concept that most people are familiar[15]. However, researchers in[16] have called for organizations to invest more in training workshops and seminars for the employees to better understand the significance of KM, and its implications for the organization as a whole[17]. The existing research has not been confined to public sector, but there are also studies focusing on the private sector. For example, Dulayami and Robinson[13] based their KM study on one Gulf country, Saudi Arabia. The study investigated various factors regarding the current state of KM in Saudi Arabia, and considered the relevance of findings for KM. The researchers conducted a survey on some private companies in Saudi Arabia which had implemented some KM policies, and conducted further literature analysis for investigating the issues. Among the findings of the research were about the culture as an important factor for KM, it was not necessarily an over-riding factor. Moreover, KM is linked to organizational learning[13].

The Gulf Region shows that different government levels have been supporting national programs to enhance awareness about strategic significance of KM in the various countries' economic and social development[18]. For example, the Emirate of Dubai has taken greater roles in advancing the concept of KM, with a number of unique initiatives. Among the initiatives has been establishment of several free zones (such as Knowledge Village, internet City and Media City) so as to attract international training institutes, IT companies and media firms to serve an increasing demand in the local business community. Authors have lauded the initiative of the 'Dubai Knowledge Village', which brings together various consulting firms, human resource firms and research institutes (like universities) to develop a talent pool for the region and establish United Arab Emirates (UAE) as an economy that is knowledge-based[19].

In a detailed review of the present state of knowledge about KM in the region, authors like Albreki and Ameen[20] have discussed role of government initiatives in KM. The authors have noted acute shortage of the KM-associated research at the organizational and regional levels in Gulf region. Authors have called attention to inter-regional and intra-regional gaps in KM, discussing various strategic options so as to lessen the gap. Authors have specifically stressed the significance of action research towards developing better understanding of the cultural and structural causes of the gaps in KM within Middle East countries, and come up with long-term plans of action that Arab countries can use to realize knowledge societies[21].

7 Research Method and Procedures

7.1 Methodology of the study

Secondary research methods using **systematic literature review** was considered as most appropriate for conducting the study[22]. The systematic literature review considered studies from scientific sources that had been conducted on aspects related to knowledge management and IT based in the Gulf so as to get secondary data. The studies were selected on the basis of certain attributes, which included: being about KM or IT, and being based in the Gulf countries (which are United Arab Emirates, Saudi Arabia, Kuwait, Oman, Bahrain and Qatar). The method was advantageous as it weeded out potential sources that would have added little contribution to the actual research. For example, knowledge management and IT sources that were not based in the Gulf countries were weeded out. To identify the sources, the researcher (following information from an acquaintance) accessed knowledge management and IT-based databases, whereby keywords were used to search for the materials. The keywords were Knowledge Management; Model; Information Technology; Training Outcome; Gulf Region, as well as their synonyms, these were the inclusion criteria. The inclusion criteria were also studied and published post-2015. The researcher looked up the abstracts of almost seventy five sources online to ascertain they were based on either KM or IT profession, and with relevance to the Gulf countries. The researcher perused the abstracts and eliminated the sources that did not present the methodology and findings in the abstracts. This resulted into about twenty of the sources being eliminated[23].

A subsequent screening of the full text of the remaining studies was done. This full screening of the text made it possible for researchers to identify the findings of the studies, so as to answer the two research questions earlier stated. As issues of validity and reliability of research instrument majorly applies to instruments used in primary research (for example survey questionnaires) rather than secondary research, there was no measure of reliability or validity of the studies. Nonetheless the researcher avoided studies that could be considered as 'having weak methodologies' during the search process. The process of screening the full texts gave the researcher the advantages of depth, control and flexibility during the process of searching for studies to include. For example, unlike reading abstracts where the researcher cannot see the full methodology used in the main study, this was not the case in screening of the full text, as researcher could read more so as to gain more depth and details from the studies conducted[24]. This led to elimination of more studies that the researcher felt had issues, such as studies with poor grammar or which did not have strong methodologies showing the research process from start to finish.

The systematic literature review was conducted online through the university library database. The online approach not only offered the advantages of convenience, but it also saved precious time that could have otherwise been incurred when conducting other search methods, such as physical search in the library journals. Moreover, contrasted to physical search, the online search made it possible for the researcher to select in real time studies identified during the course of the research[25].

7.2 Procedure followed to draw conclusion

To draw conclusion, the identified studies were read and re-read so as to identify the positions of the authors, then the different authors' observations were compared and contrasted. This was also done to check possible bias in the studies and reduce risk of bias in the secondary research. A spreadsheet was used to extract relevant data from the included studies, which numbered about thirty. A content analysis was subsequently performed on the studies. To perform the content analysis, the researcher read and then re-read the studies, after which codes were assigned to the patterns in the studies which were recurring. Those codes were subsequently categorized into broader groups known as findings. These findings were later presented in the research. To draw conclusion, a critical analysis was performed through comparing these findings. To ensure that the conclusions remained objective, the researcher adhered to research ethics where apart from ensuring the respondents in the earlier primary research remained de-identified, the researcher presented a detailed methodology which clearly showed the procedures used to arrive at a conclusion[26].

8 Results

The findings from the systematic literature review could be described under two categories:

8.1 Finding 1: Knowledge management is increasingly taking root in the Gulf countries but is facing some challenges

KM is not a new concept in the Gulf region per se, but the respondents consider that it is only recently that KM has become an important area for managing the knowledge in the organization. Nevertheless, it is only recently that KM has turned to be a systematic, methodical field in the Gulf countries. Findings from the study by[14] were that KM is a significant driver

for the organization's competitive advantage and effectiveness in the Gulf country of UAE, especially its public sector, and it is an effective approach at addressing some of the problems linked to continuously changing IT technology, which makes some of the earlier IT processes seem obsolete. This can be compared to existing arguments from authors who have noted that an organization which seriously examines its utilization and sharing of knowledge usually discovers that it possesses more knowledge than it realizes[27]. Findings from another study by Butt and Ahmad[18] observed that recent institutional and economic performance problems in the Middle East have generated tremendous debates on the capacity of organizations in both the public and private sector, to manage, develop and incorporate knowledge in strategic manner. From workers' experiences in working in the Gulf, there are various challenges in managing knowledge, such as short supply of national knowledge resources, and over reliance on foreign workforce especially from western countries to fill the knowledge gap.

What this illustrates is that a significant portion of available local knowledge resources have not been adequately recognized within Gulf region or subsequently utilized for achieving goals of the organization. Moreover the Gulf countries have been fortunate enough to attract talent and expertise from across the globe which has enabled them to build basic knowledge infrastructure. However the knowledge sources that can be found in the local markets, and which exist alongside the knowledge and experiences of the organization gained over previous years has not been optimally exploited in the Gulf countries, leading to significant amounts of unrealized potential[28].

8.2 Finding 2: Knowledge management strengthens the intellectual capacities of the organization and develops a workforce that is `knowledge collaborative', but has to consider the local culture

Some of the studies such as the study by Chiabrishvili and Zaim[7] and Dulayami and Robinson[13] had observed that KM in organizations was not only a tool which enhanced the performance of organizations, but was also a channel which voiced interests of the employees and their concerns, enabling the employees collaborate in the knowledge making processes. At the end of the day, such factors contribute towards strengthening the intellectual capacities of the organization and effectiveness of the organization's KM. One study by Kassab[12] observed that pursuit of KM in organizations in the Middle East, particularly Gulf countries, generated opportunities and benefits at both the employee level, and at the larger organizational level. At the employee level, employees have the chance of sharing the experiences, knowledge and learning from the mistakes of other employees, thus improving their skills and performance. Overall the studies show that KM makes employees want to collaborate more with other colleagues, rather than directly compete with them[3]. However employees in the Gulf do not feel that their organizations have given much focus to KM.

It is clear that KM can strengthen the collaboration efforts at the organization, however, there is scarcity of research on many real world organizations and most of the upcoming research is theoretical. Another study by Alaffad and Masrom[29], based on the aviation industry in the UAE, observed that organizations in the region can learn to collaborate more on KM than the present levels, but a challenge is that most policy recommendations are from a western point of view and the challenge is that the western culture subtly favors competition and need to be outstanding among peers, rather than collaboration culture which is dominant in the region. This can affect the acceptability of the western-based ideas of KM in the Gulf. This position is also similar to the position of the study[21], which is based in Saudi Arabia context but has implications for the wider Gulf region.

Similar observations were made by the studies[20], which was based on the UAE context. There is a scarcity of research which has looked at elements which hinder success of the KM efforts in Gulf region, confirming the observations in[29]. This is significant as global competitiveness is increasingly shifting towards a 'knowledge economy' where IT proficiency is a key requirement. The model also considers the cultural differences between the Gulf and the prevalent western societies that are a key source of the KM literature and is shown in figure 1:

9 Conclusion

To ensure that KM is distributed in the Gulf countries rather than being centralized in certain organizations, a distributed model of knowledge management is proposed. This is based on a realization that different kinds of knowledge bear different KM implications. The model encompasses best practices for knowledge creation, for knowledge sharing and for knowledge retrieval, which most of the reviewed studies identified as being important for enhancing Information Technology training outcomes in the Gulf region.

The model shows that the best practices on KM to enhance Information Technology training outcomes in the Gulf countries' centers on knowledge acquisition, storage, generation, and dissemination, all working in the context of the wider Gulf culture. One recommendation is to consider the culture and pay good attention to it. This is significant as culture plays an important role in the effectiveness of KM, and can determine the acceptability of the KM practices (Harbi, Thursfield and Bright, 2017).
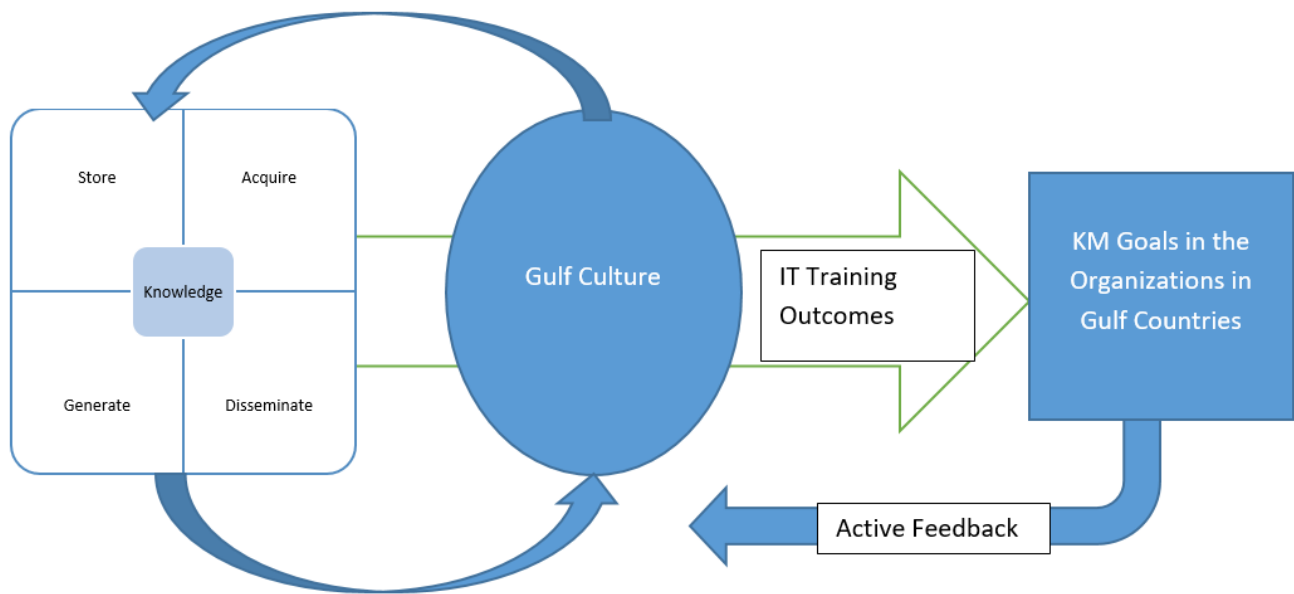
Fig 1. A model of knowledge management practices to enhance Information Technology training outcomes in the Gulf countries

A second recommendation is to search for active feedback on whether the KM practices are achieving the intended IT training outcomes. The feedback is important as it would make it possible to easily identify the issues that are lacking or emerging from implementation of the KM practices, and develop timely responses to such issues.

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