

# Factors Affecting the Acceptance of Knowledge Management System in Malaysian Higher Education Institutions

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**Abstract.** Higher education institutions nowadays are moving towards recognizing the importance of knowledge to gain competitive advantage against its rival competitors and the pressure to face globalization. This has been an important issue encounter by many countries, where Malaysia made no exception is aspiring to become a regional education hub in Asia. As societies moving from industrial to knowledge era, knowledge management should also be embedded in education sectors to act as a medium to improve teaching and learning experience. The objective of this paper is to explore the factors affecting the acceptance of knowledge management system in higher education institutions in Malaysia. Due to scarce empirical knowledge about these relationships, the needs for further research in this area is crucial. The results show that only organization culture and organization structure contribute significantly towards knowledge management systems acceptance in Malaysia, compared to individuals factors. The findings highlight the important of organizational learning in the process of managing knowledge in the academic institutions.

## I. INTRODUCTION

Higher education institutions nowadays are moving towards recognizing the importance of knowledge and utilizing it to gain competitive advantage against its competitors and the pressure to face globalization. This has been an important issue encountered by many countries, where Malaysia, made no exception, is aspired to become a regional education hub in Asia [1]. The idea to transfer Malaysia to a knowledge-based economy from a production-based economy has emerged to the introduction of the Knowledge-based Economy Master Plan to chart the planned strategic directions to achieve those goals [2]. In the Knowledge-based Economy Master Plan, it has been recognized that education has been a crucial role in transforming the production-based economy to knowledge-based economy, as well as vital part in developing human capital [2].

Therefore, as society is moving from industrial to the knowledge age, knowledge management is any important element to be embedded in the education sector as a medium to improve teaching and learning experience [1]. As highlighted by [3] and [4], the Ministry of Higher Education in Malaysia has identified knowledge management as one of the pillars in transforming Malaysia from production-based economy to knowledge-based economy. Though the implementation of knowledge management system able to offer plenty of benefits towards higher education institutions, however, they still encounter significant obstacles in fully implementing the system. First, many academicians still perceive knowledge as exclusively own asset where some of them are even reluctant to share, though some say knowledge is the type of asset which can increase its value when it is being shared among one another [5],[6]. However, there are also people who are very fond in sharing their knowledge due to their understanding that knowledge can be seen as a strategic tool to gain competitive advantage. Moreover, [7] emphasized that higher education institutions are often organized in functional areas which normally operate independently, such as academic affairs, marketing, student affairs, research and development. Hence, there are always failures in sharing knowledge within the functional areas in many higher education institutions.

Taking the higher education institution as an organizational entity, the objective of this paper is explore the factors that affect the acceptance of knowledge management system in higher education institutions. Due to limited empirical knowledge on these relationships in

this type of organizations, the need for further research in this area is crucial, and required further exploration on this issue. It is therefore important to investigate the factors that affect the acceptance of knowledge management system in higher education institutions, as well as the moderating role of demographic factors such as gender that may influence the acceptance of knowledge management system.

It is hoped that this paper will contribute to assist higher education institutions in the implementation of knowledge management amongst the academic staff, and help assist the dissemination of knowledge through their respective knowledge management systems.

## **II. KNOWLEDGE MANAGEMENT SYSTEM**

In the business world, managing knowledge effectively is the key to gain competitive advantage amongst its competitors. Knowledge management system allows employees to obtain the information they need and encourage them to share in order to create new knowledge to improve decision-making [8]. In this paper, we refer knowledge management system to any system that assist in knowledge dissemination in higher education institutions. [9] suggests that higher education institutions can also use knowledge management system to enhance the mission of the institution. [10] argued that knowledge management system can utilize and optimize the knowledge within the institutions for the purpose of teaching and learning as well as for the generation of new knowledge. While it is crucial for higher education institutions to implement knowledge management system [11], it is necessary for higher education institutions to instill the knowledge management system practices to support their functional and operational processes [9].

[12] suggested that the knowledge management system program in the higher education institutions should be aligned with the organization's strategy established by the top management. The advantages of implementing knowledge management system in the higher education institutions is to improve performance [13], [14]. This can be achieved by improving knowledge sharing practices within the institutions [15]. According to [16], Malaysian Ministry of Higher Education has identified knowledge management system as the source of new ideas creation or generation, and able to enhance and sustain the innovativeness of the institution. Due to the dated knowledge sharing practices, knowledge are restricted by locations and time zone. However, knowledge management system has solved the issue of allowing people to share a massive amount of information [17], [18]. In this paper, we have identified four factors that may influence knowledge management system acceptance in higher academic institutions. They are organizational culture, organizational structure, Leadership and Motivation aids. The following sections discusses research hypotheses, research methods, then results and discussion are reported.

### **A. Organizational Culture and Knowledge Management System**

Culture is a set of shared values and beliefs which mold the organizational culture to identify ways on how the organization runs their daily business [19]. Organizational culture has a significant influence toward the successfulness of the implementation of the knowledge management practices [20], [21]. With the right culture in place, employees will no longer have to hesitate to share their knowledge with their colleagues. The most important element that should exist in the organization culture value is "teamwork". This will lead and another important element that should be instilled for the facilitation of knowledge dissemination, which is collaborative culture. Previous studies have shown that the spirit of working as a team is the contributor of knowledge creation [22], [23].

Since knowledge management emphasizes more on people but not on technology, and in order to have the best part of knowledge management system successfully integrated with higher education institutions, institutions must constantly review and apply changes towards their policies and practices, as well as the culture of higher education systems [24]. Therefore, top management should instill the importance of knowledge sharing to their employees in order to prevent “knowledge hoarding” being present in the organization [25]. It is thus hypothesized that:

*H<sub>1</sub>: There is a positive relationship between organization culture and knowledge management system acceptance*

## **B. Organization Structure and Knowledge Management System**

Another factor which is crucial to ensure the successfulness of knowledge management system in higher education institutions is the presence of best fit organizational structure. This means that the development of knowledge-related set of roles and responsibilities to carry out specific tasks. [24] described organizational structure as the hierarchical arrangement of lines of authority to facilitate work tasks. Hence, organizational structure plays an essential role in the implementation of knowledge management system. Well-designed organizational structural is helpful for improving the efficiency of knowledge management, the process of acquisition of knowledge, transformation of knowledge, application of knowledge, and protection of knowledge [41]. [42] also stressed that organizational structure is considered as the backbone of knowledge management. Therefore, it is hypothesized that:

*H<sub>2</sub>: There is a positive relationship between organization structure and knowledge management system acceptance*

## **C. Leadership and Knowledge Management System**

Leadership is the ability of a leader to strategically align knowledge management system with the organizational strategy [1]. Previous studies have shown that leadership is another crucial in the implementation of a successful knowledge management system [25] [26]. On the other hand, poor leadership from the top management is the threat to a successful implementation of knowledge management system [27]. Most often leaders are more willing to share knowledge of their own with other colleagues in the organization to generate new ideas and continuously learning. [28] stressed out that it is important for the top manager to be involved in the knowledge sharing process. His or her involvement in the process ensure that knowledge is aligned with the organization’s policies, enhancing employees’ morale in acquiring knowledge management system, and establishing a culture which can foster the dissemination and generation of knowledge. Therefore, it is hypothesized that:

*H<sub>3</sub>: There is a positive relationship between leadership and knowledge management system acceptance*

## **D. Motivational Aids and Knowledge Management System**

In addition to the culture, structure and leadership of the organization, successful knowledge management also requires the development of certain motivational aids such as the establishment of incentives or rewards in terms of monetary or non-monetary incentives which are able to fulfill the desire among the employees to encourage them to contribute to the intellectual resources of their organization [29]. If one is not motivated to practice knowledge management, the knowledge management practices will not be successful despite the huge investment made by the organization on the technology as well as the infrastructure. In addition to that, the motivational aids should also reward employees who contribute innovative ideas as well as employees who possess great teamwork [30]. [29] further suggest that employees will be more effective in contributing knowledge, only if the motivational aids influence their performance. Previous studies have shown that the role of motivational aids is crucial in triggering the academicians for knowledge sharing amongst their colleagues [31], [32], [33]. Therefore it is hypothesized that:

*H<sub>4</sub>: There is a positive relationship between motivational aids and knowledge management system acceptance.*

## **E. The Moderating Role of Gender**

Previous research highlighted the significant distinction between the decision-making processed by women and men. This is because the cognitive structures of both men and women are different, therefore, the way they process information are also different [34]. They suggest that men tend to be more driven by the perceived usefulness, whereas women are more influenced by the ease of use. Moreover, for men, if they perceive the given service is useful and able achieve their objectives, the likelihood of repeating the service is also higher [35]. Moreover, [36] shown that the way men and women seek knowledge is different, showing a significant difference in terms of knowledge sharing between both of them [37], [38]. Therefore, it is hypothesized that:

*H<sub>5</sub>: Gender moderates the relationship between organization culture, organization structure, leadership, motivational aids and knowledge management system acceptance, whereby the relationship is perceived to be stronger for women compared to men.*

## **III. RESEARCH METHOD**

A self-administered questionnaire was distributed to the Human Resource Departments of higher education institutions in the Sabah state of Malaysia. The respondents are given two weeks to complete the questionnaire. The respondents have been clarified about the objective of the study and the significant of the results for higher education institutions.

## **IV. RESULTS**

From a total of 200 questionnaires that were distributed to lecturers from both private and public higher education institutions in Sabah, 180 questionnaires returned and 178 were usable. In addition to that, 32 questionnaires were submitted online, which makes a total number of respondents to 210.

## A. Respondents' Profile

Table 1 summarizes the demographic profile of the respondents of the study.

Table 1. Respondents' Profile

Demographic Variables	Categories	Freq	%
<b>Gender</b>	Male	80	38.1
	Female	130	61.9
<b>Age</b>	18 to 25	27	12.9
	26 to 35	97	46.2
	36 to 45	56	26.7
	46 to 55	25	11.9
	56 and above	5	2.4
<b>Types of education institutions</b>	Public Higher Education Institute (IPTA)	65	31
	Private Higher Education Institute (IPTS)	145	69
<b>Education level</b>	SPM	6	2.9
	SPTM/Foundation/Diploma	43	20.5
	Professional Certificate	7	3.3
	Bachelor Degree	127	60.5
	Master Degree	25	11.9
	PhD	2	1
<b>Knowledge of KMS</b>	Nothing	63	30
	Some knowledge	57	27.1
	Average knowledge	82	39
	More than average knowledge	8	3.8
	Very knowledgeable	-	-
<b>Institution has a formal KMS program</b>	Yes	108	51.4
	Nothing	27	12.9
	Unsure	75	35.7

## B. Validity Analysis

Factor analysis were performed to test the validity analysis and to determine the set of correlated variables to represent the dimensions within the data [39]. In accordance, there are two ways to identify the factorability of the correlated matrix, they are Kaiser-Meyer-Olkin (KMO) and Barlett's Test. Hence, KMO and Barlett's Test, Communalities, Component Matrix and Rotated Component Matrix were used to analyze the result. The assumptions of the KMO and Bartlett's Test measure of sampling adequacy values must exceed 0.50 ([39] Hair, 2010).

In order to measure the sampling adequacy for each of the variables, the KMO analysis is being conducted, and the results shown that the variables are above accepted value of 0.5, the eigenvalues of all variables are greater than 1; and all the items for each research variable have exceeded factor loadings of 0.40 [39].

## C. Reliability Analysis

Reliability analysis was conducted to ensure the internal consistency of measurement. Table 2 shows a summary of the variables.

Table 2. Reliability Analysis

Variables	No. of Item	Cronbach's Alpha
<b>KMS Acceptance</b>	22	0.904
<b>Organization Culture</b>	4	0.678
<b>Organization Structure</b>	4	0.861
<b>Leadership</b>	5	0.857
<b>Motivational Aids</b>	4	0.862

#### D. Descriptive Statistics

Descriptive analysis analyzes the data by checking the central tendency the means and standard deviations. A summary of descriptive statistics of all variables is shown in Table 3. There are five variables which are KMS acceptance, organization culture, organization structure, leadership, and motivation aids. The dimensions of the variables are ranked according to 1 to 5 point Likert Scale.

Table 3. Descriptive Analysis

Variables	Mean	Std. Deviation
<b>KMS Acceptance</b>	3.59	0.546
<b>Organization Culture</b>	3.65	0.672
<b>Organization Structure</b>	3.73	0.763
<b>Leadership</b>	3.62	0.780
<b>Motivational Aids</b>	3.31	0.835

#### E. Multiple Regression Analysis

Table 4. Regression Analysis

Dependent Variable	Independent Variable	Std. Coefficients Beta ( $\beta$ )	t-Value
<b>KMS Acceptance</b>	Organization Culture	0.324	4.618
	Organization Structure	0.259	3.456
	Leadership	0.121	1.602
	Motivational Aids	0.067	1.037
	R <sup>2</sup>	0.408	
	Adjusted R <sup>2</sup>	0.397	
	Sig. F	35.337 (p < 0.01)	

Multiple regression analysis was performed to investigate and determine whether there is a positive relationship between the independent variables (organization culture, organization structure, leadership and motivation aids) and the dependent variable (knowledge management system acceptance). Moreover, hierarchical regression analysis was performed to test the moderating effect of gender on the relationship between the independent variables and the dependent variable. This method is being used to test Hypothesis 5.

According to Table 4, the coefficient for organization culture possess the strongest which is .324, followed by organization structure with .259, leadership .121, and motivational aids .067. The R<sup>2</sup> shows that 40.8% of the four independent variables namely organization culture, organization structure, leadership, and motivational aids are explained the dependent variable which is KMS acceptance.

The results for organization culture are (t = 4.618; Sig. = .000), followed by organization structure (t = 3.456; Sig. = .001), leadership (t = 1.602; Sig. = .111), and motivational aids are (t = 1.037; Sig. = .301). Therefore, from this analysis, we conclude that H<sub>1</sub> and H<sub>2</sub> are supported, while H<sub>3</sub> and H<sub>4</sub> are not supported.

#### F. Hierarchical Regression Analysis

Based on Table 5, the result for the multiple regression showing that there is no significant relation for the independent variable, dependent variable and the moderator. R<sup>2</sup> changes for 3 model is significantly increasing (.408 > .412). The significant level for four of the variables are .290, .465, .731, and .409, they are all greater than 0.05 which indicates that

gender does not moderate the relationship between organization culture, organization structure, leadership, motivational aids, and KMS acceptance. Hence, H<sub>5</sub> is not supported

Table 5. The moderating effect of gender

Dependent Variable	Variables	Std. beta step 1	Std. beta step 2	Std. beta step 3
KMS Acceptance	<i>Independent Variable:</i>			
	Organization culture	0.324	0.328	0.265
	Organization structure	0.259	0.259	0.214
	Leadership	0.121	0.122	0.148
	Motivational Aids	0.067	0.070	0.146
	<i>Moderating variable:</i>			
	Gender		0.030	0.035
	<i>Interaction Terms:</i>			
	Gender x Organization culture			0.087
	Gender x Organization structure			0.061
	Gender x Leadership			-0.031
Gender x Motivational aids			-0.084	
<b>R<sup>2</sup></b>		0.408	0.409	0.412
<b>Adjusted R<sup>2</sup></b>		0.397	0.395	0.395
<b>R<sup>2</sup> Change</b>		0.408	0.001	0.003
<b>F Change</b>		35.337	0.306	1.125
<b>Sig. F Change</b>		0.000	0.581	0.290

## V. DISCUSSION

Referring to the results of the analysis on the respondents' profile, it is shown that majority of the respondents possess average knowledge regarding on the knowledge management systems which comprises of 39%, followed by 27.1% who possess some knowledge on KMS, and 3.8% have more knowledge on KMS. However, 30% reported who have no knowledge on KMS. These results are actually not satisfactory as we can clearly observe that almost the third of the respondents do not have knowledge about their own knowledge management systems in their respective institutions. These results are alarming for these institutions because either their employees are not sharing enough knowledge through the system, or they are sharing knowledge through other channels then the institutions system. In both cases, institutions should consider increasing the participation of employee in knowledge sharing though their systems.

The results from the linear regression shows that there is a positive relationship between organization culture, organization structure and KMS acceptance. The result seems to support the initial hypotheses regarding the organization culture, organization structure and KMS acceptance. It should be noted that these results are consistent with many previous findings.

To clarify further, first, it was confirmed that organization culture have a positive relationship with KMS acceptance. Referring to the multiple linear regression, organization culture resulted (Sig. = .000 < .05). The generated results provide support to [20] and [21] who concluded that organizational culture has a significant influence toward the successfulness of the implementation of the KMS practices. This can be justified because with the right culture in place, employees are ready and comfortable to share their knowledge with their colleagues. For example, the employees are more obliged to share their knowledge with their colleagues, if the organization culture of their institutions is best fit towards the practices of knowledge management.

Second, it was confirmed that organization structure have a positive relationship with KMS acceptance. Referring to the multiple linear regression, organization structure resulted (Sig. = .001 < .05). Previous research by [40] support these findings. Moreover, [41] confirmed that a well-designed organization structure was helpful for improving the efficiency of KMS. This is because with a systematic structure in-placed, it will be helpful for the KMS practices (the process of acquisition of knowledge, transformation of knowledge, application of knowledge, and protection of knowledge) to take place since organizational structure is considered the backbone of knowledge management [42].

Third, the results showed no positive relationship between leadership and the acceptance of KMS. Referring to the multiple linear regression, leadership resulted (Sig. = .111 > .05). These findings are surprisingly not consistent with previous studies with found contradict results [25], [26]. Leadership positions in academic institutions may not be keen to share knowledge with their employees, as they may see that as not their primary task. In higher academic institutions, defining leadership to the employees is a complex task, as this function may be shared by academic and non-academic leaders. Non-academic leaders are responsible for engaging employee with knowledge management system in the institutions. This may not be clearly observed by employees who may perceive leadership as only their immediate bosses such as head of faculty, deans. This may justify the results of this paper. Nevertheless, some research are aligned with these finding such as [43] and [44], where their findings yield to the same results.

Fourth, the analysis of this paper found no positive relationship between motivational aids and the acceptance of KMS. Referring to the multiple linear regression, motivational aids resulted (Sig. = .301 > .05). The results do not conform to previous studies conducted by [25] and [26]. However, the findings of this research is aligned with other stream of research which support the notion that motivational aids yield no significant relationship, for instance, studies by [45] and [33] has led to the same results. These findings can actually be justified that employees in higher education institutions being lecturer are not motivated by incentives to successfully accept or use knowledge management system. The nature of teaching and researching is not as the nature of other money-making positions in business organizations that can be easily trigged by incentives and aids. Thus, it is naturally justifiable to have academic employees' attitude to be different from other business employees.

Finally, the result also failed to demonstrate the moderating effect of gender. This effect resulted towards organization culture (Sig. = .290 > .05), organization structure (Sig. = .465 > .05), leadership (Sig. = .731 > .05), and motivational aids (Sig. = .409 > .05). These results does not support the previous study by [35] and [34]. This might be because the term "gender" is being used in this study to refer to biological sex. This is important because the psychological gender is indeed able influence the knowledge sharing behavior but not biological sex, where his analysis was based on psychological gender categories and provide further support for the primacy of psychological over biological gender [46]. However, there are some previous studies that are aligned with the findings of this study, such as [47] and [38]. Another justification for the lack of the moderating effect of gender, is that the higher academic institutions possess an equal environment for both male and female attitudes. Furthermore, the academic environment of teaching and researching has equal function for both male and female and make no distinction between the way of methods knowledge is being disseminated or shared.



## VI. CONCLUSION

Lecturers or educators in higher education institutions carry a pivotal role in transferring their acquired knowledge to their learners. In this paper, it was found that there are still lack of awareness for this particular organizations in Sabah in accepting knowledge management systems for a smooth and real-time transfer of knowledge in their organizations. Hence, this paper was carried out to examine the factors affecting the acceptance of knowledge management systems in higher education institutions in Sabah, Malaysia.

It has found that only organization culture and organization structure show significant result towards knowledge management system acceptance. Whereby leadership and motivational aids was found not to have any significant relationship. The reason for these findings can be justified by the nature for the academic institutions where they vastly differ from ordinary business organizations from the individual characteristics (leadership and motivational aids), but have similar organizational structure with other business organizations (organizational culture and organizational structure). Gender was not found to moderate the relationship between variables and knowledge management due the equal structure of academic employees which differ from other business organizations.

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