

# Knowledge Management System and Higher Education Institutions

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**Abstract.** Knowledge Management System is the key in achieving opportunities for better decision-making and competitive advantages for organizations. Academic sector have significant opportunities to apply Knowledge Management System practices to their mission. Applying Knowledge Management System concepts has led Higher Education Institutions to explore how Knowledge Management System might be applied in a Higher Education Institutions setting. This study explored such uses of Knowledge Management System in Higher Education Institution. The paper is based upon a quantitative and qualitative study. It is produced after gathering feedback through questionnaires from twenty academic staff and eleven non-academic staff in one of the public university in Malaysia. Results of the questionnaires and interviewing session with the academic and non-academic staff illustrate that, Knowledge Management System in Higher Education Institution could boost the efficiency, effectiveness, and quality of graduates who can satisfy the employers' need in the entry level of employability in their future.

**Keywords:** knowledge management system, higher education institution, curriculum.

## 1. Introduction

Over the past few years, academic management was mirroring the innovations, philosophies, strategies and techniques originating in the business sector. These include benchmarking, total quality management (TQM), and business process reengineering [1]. Knowledge Management System KMS which has its origins in a number of related business improvement areas, such as TQM, business process re-engineering, information systems and human resource management is the latest techniques capturing the attention of managers in business sector [2]. Various researchers acknowledge that knowledge processes are becoming a pre-requisite for success in organizations [3, 4, 5, 6, 7, 8]. KMS is generating a lot of interest in the corporate sector and has now emerged as a hot discipline [9]. Speaking at the International Conference on Knowledge Management in Kuala Lumpur, in July 2005, the Prime Minister of Malaysia stated that, "People are the most important factor in a knowledge based economy, a new era which invariably leads to the subsequent knowledge management paradigm. Knowledge Management becomes increasingly critical and fundamental for survival and self-sustenance [10]. This is supported by the Malaysian Ministry of Human Resources (2011) that, almost all the universities today focus on how to increase the students' quality and skills through university and industry collaboration. Changing nature of work increases the need for 21st century skills preparation.

The HEI markets are becoming global as universities attempt to internationalize their curricula and offer high quality programs to students. Academic sector also face demands from industry. Firms want flexible and adaptable knowledge workers. Universities also expected to produce people who can lead, who can produce new knowledge, who can see new problems and imagine new ways of approaching old problems. Universities have a role to prepare people to go beyond the present and be able to respond to a future which cannot be imagined [11]. There is also an increase of interest towards KMS in organizations and academia [12]. HEI have realized that KMS could play an important role in their organization which helps them to

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improve their service quality. HEI have been challenged to both create and disseminate knowledge [13]. In this paper, the researchers discuss the role of KMS in HEI.

## **2. Research Method**

Responses were analyzed using mixed method which consists of both qualitative and quantitative method. Qualitative research design was chosen for this study because it offers naturalistic inquiry. Quantitative research was carried out to gather the data from the large samples through proper sampling method in an inexpensive way. A total of thirty five questionnaires were given to academic staff. However, nine academic staff does not return and six questionnaires had incomplete information which rendered them unusable. On the other hand, a total of nineteen questionnaires were given to the non-academic staff. However, five non-academic staff does not return and two questionnaires had incomplete information which rendered them unusable.

## **3. Research Question**

The first objective of this research is to investigate KMS collaboration and its impact towards HEI. Followed by that, there will be a discussion on how well the HEI staff support the effort of introducing KMS in HEI in Malaysia.

## **4. Research Findings**

### **4.1. Knowledge management system in higher education institution**

KMS connects people with the knowledge that they need to take action, when they need it. In the corporate sector, managing knowledge is the key towards competitive advantage. KMS strategies and practices can help identify knowledge gaps, and thus enable people to obtain the information they need and encourage them to share it with others, sometimes creating new knowledge and improved decisions [14]. Kidwell et al. (2004) observed that Higher Education Institutions (HEI) could use KMS to improve their organizations' mission [15]. Martin (1999) argued that KMS could support the preservation of organizational assets by optimizing the knowledge within the organization, encouraging a knowledge-creation process and utilizing that knowledge for teaching and learning [16]. Tajuddin (2008) stated that, the first act of KMS is to overhaul the educational curriculum towards a more human and humane oriented strategies that would benefit the greater masses [17]. Sallis and Jones (2002) insisted that there is as much need for KMS in HEI [18]. Kidwell et al. (2000) supported that HEI are suitable places to apply KMS practices to support their functional and operational processes [15].

Stewart and Carpenter, H. (2001) and Townley (2003) categorize productive KMS in terms of the leadership's ability to direct faculty toward the university's vision for adaptive change [19, 20]. Bernbom (2001) suggested that operating a KMS program in a HEI should serve the objectives of the academic strategy plan developed by the leadership where a clear vision, goals and objectives are articulated for a sustainable KMS program [21]. Fireston (2003) supported that KMS is useful for the arrangement processes (capture, codification, sharing, and distribution of knowledge) and managing the knowledge production processes (knowledge making, knowledge creation, and knowledge discovery) [22]. Other benefits of implementing KMS is also seen to have improved performance [23, 24], a way to improve effective acquisition, sharing and usage of information within organizations, a way to reduce research costs and delays, a way to become a more innovative organization, and a way to capture best practices [4]

According to Malaysian Ministry of Higher Education (2010), KMS is a method that could increase institutional innovation as it is the source of new ideas. The basic principles of KMS used to support its usage in HEI should be based on a KMS program that addresses beliefs, norms and behaviors unique to HEI. KMS has made it possible for people to share enormous amounts of information unconstrained by the boundaries of geography and time [25]. KMS can be categorized in terms of the leadership's ability to direct the staff and faculty toward the university's vision for adaptive change [19], [20]. HEIs could use KMS to improve their organizations' mission [13]. Martin (1999) had identified several common goals in his

discovery of a strategy for KMS in a university such as utilizing the best practices and lesson across the HEI [16]. KMS can be relevant to educational decision making within the school as an organization [14].

Chan and Chau (2005) tied KMS and HEI together and gave the HEI a competitive advantage by providing a foundation of storing and using information [26]. Unlike the corporate motivation for competitive achievement, much of the focus on KMS for academe is described as a continuous sharing of activities. The emphasis on activity sharing and achieving knowledge is the essence of an educational system [27, 28]. With globalization, KMS has allowed organizations to become more competitive [13]. KMS enables the creation, distribution, and exploitation of knowledge in order to create and retain great value for core business competencies [29]. KMS is a process where institutions formulate ways to recognize and archive assets that derived from the employees or academics of various departments or faculties, and in some cases, even from other institutions or organizations sharing similar areas of interest [30]. KMS method in HEI improves the strategy planning, such as strategy planning decentralization, sharing internal and external information, market-focus strategy plans, and sharing knowledge from a variety of resources.

#### **4.2. HEI staff support towards KMS**

Among the twenty academic staff and twelve non-academic staff who responded, ninety percent of the academic respondents are PhD holders and fifty eight percent of the non-academic staff are diploma holders. Among the academic staff, ninety five percent of the academic staff and seventy five percent of the non-academic staff are familiar with the term KMS. 93.8 percent of HEI members agreed that KMS could help HEI to enhance curriculum review process. During the interviewing, a group of academic staff stressed that, HEI could enhance their curriculum review process by improving the quality of curriculums and program. This is supported by Steyn, G.M., (2004) that, KMS could improve faculty development efforts, especially for new faculty members, improve administrative services related to teaching and learning with technology, improve responsiveness by monitoring and lessons learnt from the experiences of colleagues [31]. Petrides and Nodine (2003) added that, KMS in HEI could help the institution in reviewing, revising, and effecting stronger curriculum development processes, interdepartmental assessments, department portfolios or program reviews [32]. However, most significant is that, everyone should be willing to inform and be informed all the time. This is supported by 90.6% of the HEI members that KMS encourage a knowledge creation process and utilizing that knowledge for curriculum improvement. Besides that, 84.4 % of the HEI members believed that KMS could overhaul HEI educational curriculum towards a more human and humane oriented strategies. Besides that, KMS could improve the overall curriculum enhancement process [13].

During the interview session with the HEI members, the officers commented that KMS could enhance the quality of curriculum and programs by identifying and lever aging best practices and monitoring outcomes. They also added that, KMS improve speed of curriculum revision and updating. A senior non-academic staff added that, KMS could improve the administrative services related to teaching and learning with technology, improved responsiveness by monitoring and incorporating lessons learned from the experiences of colleagues, student evaluations, and corporate or other constituent input. This is supported by 90.6 percent of the HEI members that KMS could improve the speed of curriculum revision and updating. In addition, 84.4% of HEI members agreed that, KMS could improve the administrative services related to curriculum improvement. Apart from that, 91.6 percent of the HEI members and 96.1% of the employers argued that KMS will help HEI in reviewing, revising and effecting stronger curriculum review processes, interdepartmental assessments, department portfolios or program reviews. 90.6% of the HEI members mentioned that KMS will improve the overall decision making on curriculum.

Based on the literature review and the feedback from the research, the researchers stressed that KMS could improve the communication between students, HEI and employers through KMS as shown in Figure 1.

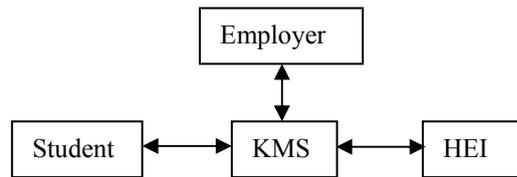


Fig. 1: KMS in HEI

It is the task of HEI to bring the new requirements of ICT industry demands to their students. HEI are encouraged to pay greater attention to improve the teaching and enhance student learning by collaborating with industry. Besides that, KMS could improve the services of HEI for students [25]. Some of the areas that could be improved by KMS are such as library, academic measurement, general information, and information technology support services. This improvement will indirectly improve the efficiency of HEI services. The researchers also argued that KMS implementation in HEI could improve the administrative services by focusing on the type administrative services, efforts of development, administrative decentralization, administrative policies, and responsiveness and communication capabilities.

## 5. Conclusion

Each HEI is unique in its scope, size, and priorities, and is a complex institution that balances both providing superior education and research opportunities, while simultaneously operating as an efficient and effective business in a competitive market [33]. KMS efforts are not sustainable unless the organization implements a means of enhancing individual learning through the individual's own contributions [34]. So, there is a need for KMS technology and systems to bridge the gap between present and prior contexts of knowledge creation, sharing, or application. KMS activities which are created for encouraging KMS processes must be in agreement with the organization's goals, social processes, organization behavior, and organization strategy. The researcher also added that KMS in HEI could help in the growth of learner-centered knowledge and action learning, growth in work-related learning, movement from closed to open-knowledge systems and extensive development in computer-based communication technologies. If KMS is properly developed within HEI, it would improve HEI performance and productivity.

## 6. References

- [1] Bimbaum, R. (2000). *Management Fads in Higher Education: Where they come from, what they do and why they fail?* San Francisco: Josey-Bass Publishers.
- [2] Metaxiotis, K., Ergazakis & Psarras, K.J. (2005). Exploring the world of Knowledge Management: Agreements and disagreements in the academic / practitioner community. *Journal of Knowledge Management*, 9(2), 6-18.
- [3] Bhatt, G.D. (2000). Organizing knowledge in the knowledge development cycle. *Journal of Knowledge Management*, 4(1), 15-26.
- [4] Cole, R. (1998). Introduction. *California Management Review*, 40(3), 15-21.
- [5] Leonard-Barton. (1998). *Wellsprings of Knowledge: Building and sustaining the source of innovation*. Boston: Harvard Business School Press.
- [6] Lynn, G. (1998) New Product team learning: Developing and profiting from your knowledge capital. *California Management Review*, 40, (4), 164-176.
- [7] Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(10), 14-37.
- [8] Porter-Lieskind, J. (1996). Knowledge strategy and the theory of the firm. *Strategic Management Journal*. 17, 93-107.
- [9] Goh, A.L.S. (2005). Harnessing Knowledge for innovation: An integrated management framework. *Journal of Knowledge Management*, 9 (4), 6-18.
- [10] Azizan (2005), July 10. Moving towards Knowledge Management. *New Straits Times*, p.4.
- [11] Henry, W. (2001). American Higher education in the twenty-first century: Social, political and economic change. *Higher Education Policy*, 14(1), 96-98.

- [12] Nazir, A.S., Alinda, A.R., Nor, H.Z., Kamaruddin, M.M. and Shamsul, Shamsul. 2004. Knowledge Management Framework for Representing Lessons Learned System for Communities of Practice in Institutions of Higher learning. *Malaysian Journal of Library & Information Science*. Vol. 17, No. 1: 1-12.
- [13] Hawkins, D.E. 2006. Transferring tourism knowledge: the role of higher education institutions. *Journal of Quality Assurance in Hospitality & Tourism*. Vol.7, no.2: 13-27.
- [14] Petrides, L.A., Nguyen, L. 2006. Knowledge management trends: Challenges and opportunities for educational institutions. In A. Metcalfe (Ed). *Knowledge Management and Higher Education*: 21-33. Hershey, PA: Information Science Publishing.
- [15] Kidwell, J.J., Vander Linde, K.M. and Johnson, S.I. 2004. Knowledge Management Practices Applying Corporate in Higher Education: Colleges and universities have significant opportunities to apply knowledge management practices to support every part of their mission, No.4. *Educause Quarterly*.
- [16] Martin, W. 1999. New directions in education for LIS - knowledge management programs at RMIT. *Journal of Education for Library & Information Science*. Vol.40, No.3: 142-150.
- [17] Tajuddin, M. 2008. Knowledge management of Educational. *Architecture and Architectural Heritage in a Democratic Society*. University Technology Malaysia, Malaysia.
- [18] Sallis, E., & Jones, G. 2002. *Knowledge Management in Education* London: Kogan
- [19] Stewart, A. C., & Carpenters-Hubin, J. 2001. The Balanced Scorecard. *Planning for Higher Education*, 37- 42.
- [20] Townley, C. T. 2003. Will the academy learn to manage knowledge. *Educause Quarterly*. Vol2: 8-11.
- [21] Bernbom, G. (Ed.), *EDUCAUSE Leadership Strategies*. No 3: 25 – 42. San Francisco: Jossey-Bass.
- [22] Firestone, M.J. 2003. *The New Knowledge Management: A Paradigm and its Problems*. Alexandria Press, USA.
- [23] Bassi, L.J. (1997). Harnessing the power of intellectual capital. *Training & Development*, 51(12), 25-30.
- [24] Ostro, N. (1997). The corporate brain. *Chief Executive*, 12 (3), 58-62.
- [25] Bukowitz, W.R., & Williams, R.L. (2000). *The knowledge management field book*. Revised edition. London: Prentice-Hall.
- [26] Chan, I., & Chau, P. Y. K. (2005). Why knowledge management fails: Lessons from a case study. In M. E. Jennex (Ed.), *Case studies in knowledge management*: 279-288. Hershey, PA: Idea Group.
- [27] Achava, A.P. (2001). Knowledge management in higher education. Southeast Asian, Ministers of Education Organization Congress Conference.
- [28] Cronin, B., & Davenport, E. (2001). Knowledge management in higher education: acknowledging cultural complexity. In G. Bernbom (Ed.), *EDUCAUSE Leadership Strategies*. 3, 25 – 42. San Francisco: Jossey-Bass.
- [29] Tiwana, A. 2002. *The Knowledge Management Toolkit*. USA: Prentice Hall.
- [30] Joseph, M.F. (2001). Key issues in knowledge management- Knowledge and Innovation. *Journal of the Knowledge Management Consortium International*. 1(3), 8-38.
- [31] Steyn, G.M. (2004). Harnessing the power of knowledge in higher education. *Higher Education*, 124(4), 615-631.
- [32] Petrides, A.L., & Nodine, R.T. (2003). *Knowledge management in education: defining the landscape*, The institution for the study of knowledge management in education Press, USA.
- [33] Cranfield, D., & Taylor, J. (2008). Knowledge management and higher education: a UK case study. *Electronic Journal of Knowledge Management*, 6, 1-116.
- [34] Snyder, C.A., & Wilson, L. T. (1997). *Computer Augmented Learning: The Basis of Sustained Knowledge Management*. Information, Learner First.