Education Administrators' Views about Knowledge Management

Vasso Stylianou and Andreas Savva

Department of Computer Science, School of Sciences and Engineering, University of Nicosia, Nicosia 2417, Cyprus

Abstract: Sustainable development of human resources within Higher Education Institutions (HEI) involves utilizing the current human capital in ways which will allow it to persevere and grow individually and collectively. Such development may be achieved through knowledge management (KM) practices. Quality levels of education offerings may be elevated through the dissemination and enhancement of knowledge and practice, in learning and teaching, within and across universities and colleges. On its road to KM success an organization must give the necessary attention to a number of factors which are considered critical. Amongst these is the need to have a KM strategy and successful leadership. Thus, this research was initiated to investigate the viewpoints of top executives in a HEI regarding KM practices in education. Among other things, the administrators put emphasis on the need for efficient collaboration and communication channels to be established and enabled by the appropriate Information and Communication Technologies (ICTs). Their comments and highlights may serve to broaden our understanding regarding future steps in the process of establishing KM in HE.

1 INTRODUCTION

Within Higher Education Institutions (HEI) there is a plethora of knowledge in many different areas of concentration. Such knowledge, if managed efficiently, should be valuable not only for the HEIs themselves but for the society in general. Provided that appropriate Knowledge Management (KM) practices shall be put in place, a HEI can, not only, achieve sustainable development of human capital but may effectively improve the level and quality of the knowledge services that it offers. A KM strategy which will be led by a KM-enabling leadership is essential.

This research was initiated to investigate the viewpoints of top executives in a HEI located in Cyprus regarding KM practices in education. Their comments and highlights may serve to broaden our understanding regarding future steps in the process of establishing KM in Higher Education (HE).

2 THEORETICAL BACKGROUND

2.1 The Value of KM for HE

Knowledge and Knowledge Management are laid down in the definition: "Knowledge management is an organized and systematic approach encompassing knowledge processes such as the creation, usage, storage, share, transfer and retrieval of knowledge in order to improve business performances" (HEFCE, 2009). Thus, KM is closely related to the core strategic goals of Higher Education (Figure 1).

Figure 1: Core Strategic Aims for HE, Source (HEFCE, 2009).

Sharing knowledge effectively is often as important as the original research and scholarship. Professional practice in knowledge exchange can be the engine of economic and social regeneration, and

the driver of business and institutional innovation. An example of best practice in this direction is the creation of Knowledge Transfer Partnerships (KTP) (GOV.UK, 2021) between the industry and academia. Sustainable development of human capital in HE can be achieved through knowledge management practices. The quality of education offered can also be realized via the dissemination and enhancement of knowledge and practice in learning and teaching within and across universities and colleges.

In (Stylianou, 2015), the author presents a compiled list of driving forces which formulate a need for a KM system in academic institutions. The list includes the following:

- The need to maintain knowledge as the most important asset of academic institutions.
- The fact that participants in educational environments are often engaged in huge duplication efforts (Robson, Norris, Lefrere, Collier, & Mason, 2003) which may involve re-creating existing teaching materials, etc.
- A sudden increase of available online teaching and learning material on campus; a great volume of this material was generated during the COVID-19 period out of need for online education for all disciplines and levels of study.
- The importance of excellence in teaching and in knowledge exchange, as these are highly regarded as excellence in research (HEFCE, 2009).
- The desire of HE institutions to deliver lifelong learning.
- The need to deliver HE to, and widen the participation of, under-represented groups.
- The existence of a truly competitive knowledge-based economy and an open inclusive society, both very knowledge intensive.
- The need to enhance quality by the dissemination of knowledge and practice in learning and teaching across universities.
- The need to share good practice through networks which will connect all parties concerned within an institution, between institutions, and between them and the society.

It has been twenty years ago that researchers such as Kidwell and co-researchers (Kidwell, Vander, Karen, & Johnson, 2001), were outlining significant opportunities for academic institutions to apply knowledge management practices to support their mission. With the convergence of e-business and KM using common portals, it is possible to extend the organization's communities to include the customer in the generation and exchange of knowledge and thus gain an effective competitive advantage (Kidwell, Vander, Karen, & Johnson, 2001).

2.2 KM in HEIs

In the 21st century HEIs: a) help to create the knowledge, skills, and values that underpin a civilized society; b) can transform the lives of individuals substantially; and c) drive innovation and economic transformation (Browne, 2010). Universities, according to Boulton and Lucas (Boulton & Lucas, 2008) can also be part of the process of producing a successful knowledge economy. Amongst other benefits of pursuing KM, one may include, according to Milam (Milam, 2001), that KM will enable universities to increase student retention and graduation rates, retain a technology workforce, expand Web-based offerings, analyse the cost-effective use of technology, and do other things necessary to compete in an environment where institutions cross state and national borders to meet students' needs.

Some published evidence about KM practices in HEIs from around the world is available in the following articles: On tacit knowledge transfers in Australian HEIs by Chugh, (Chugh, 2017) and (Chung, 2015); KM in Nigerian universities as presented by Ojo (Ojo, 2016); KM in Indian universities by Bhusry and Ranjan (Bhusry & Ranjan, 2011); Arntzen and co-researchers (Arntzen, Worasinchai, & Ribiere, 2009) on KM practices at Bangkok University; Petrides and Nodine (Petrides & Nodine, 2003), on educational institutions across the USA which received grants to implement KM practices; and Ramachandran and co-researchers (Ramachandran, Chong, & Ismail, 2009) on practices of KM processes in public and private HEIs in Malaysia. Cranfield and Taylor (Cranfield & Taylor, 2008) claim that universities in general, and UK HEIs in particular, do have a significant level of KM activities, which Rowley (Rowley, 2000) contends is important to recognize and use as foundations for further development. Cranfield and Taylor (Cranfield & Taylor, 2008) performed a case study between seven HEI in the UK. Two HEIs were engaging in KM in a systemic and institutional-wide way, and a further two had champions engaging in KM overtly within their faculty.

It remains that, HEIs should deploy KM practices to support every aspect of their mission – from education to public service to research. An institution-wide approach to KM can lead to exponential improvements in sharing knowledge, leverage the knowledge capital and enable the organization to become more effective (Laal, 2011). Blackman and Kennedy (Blackman & Kennedy, 2009) claimed that strategic success in the university

is dependent on deeper understandings of the nature and role of knowledge management.

After investigating the role of the Academic Board and the University Council in an Australian university, Blackman and Kennedy (Blackman & Kennedy, 2009) concluded that in the case studied, the type of knowledge targeted was narrow and committee members were focused on processes that did not effectively enable the creation or transfer of knowledge.

3 RESEARCH OBJECTIVES AND METHODOLOGY

3.1 Research Objectives

The role of leaders in knowledge management is very important. Knowledge leaders through their strategic visions, motivation, and effective communication will be the change agents who through their practices will make knowledge transfer effective (Debowski, 2006).

Thus, this study was initiated to:

(i) Capture the perceptions of administrators in a HEI regarding "the knowledge organization";
(ii) Identify their involvement in existing or planned KM practices in the HEI; and
(iii) Establish needs and perceived opportunities relating to KM, according to the executive management of the HEI.

This qualitative study may serve to broaden our understanding regarding future steps in the process of establishing KM in HE.

3.2 The Research Methodology

Interviews constitute a popular method of collecting qualitative data. Though they can be designed as required, there is a preference for semi-structured interviews which being open-ended, allow the definition of terms before analysis takes place, and aim to explore what the interviewee thinks [Banister et al, 1994; Miller, Glassner, 1997; Dvale, 1996, cited in (Pavlou, 2001)]. At the same time focused semi-structured interviews allow the interviewee the time and scope to talk about his/her opinions on a particular subject. The focus of the semi-structured interviews is decided by the researcher along with the areas s/he is interested in exploring (Central, 2007). Data collection through interviews is a very time

consuming and expensive process, and processing and analysing the data collected is more complicated than analysing quantitative data. On the other hand, interviews, especially personal face-to-face ones, are a "process of open discovery" (Hussey & Hussey, 1997) and this is the strength of this data collection method.

This study involved a literature review (referenced throughout the paper) for collecting secondary data, and a qualitative research methodology for the collection of primary data via a number of face-to-face individual and semi-structured interviews with top executives of a HEI located in Cyprus. During the interviews we collected information regarding the executives' opinions, views, and experiences in relation to current KM activities and future plans.

4 RESEARCH FINDINGS

The qualitative data collected from the interviews held with the organization's top administrators, were transcribed, compiled and summarized. The main findings of the study are presented below.

4.1 Establish Current Practices in Relation to Key KM Practices

4.1.1 Collecting/Capturing Existing Knowledge

A lot of useful data were found to be stored in different forms, some manual, other electronic, by different departments. Examples of these data included: student data, employee data, data on facilities' utilization, library utilization, feasibility studies, quotations, etc. A big volume of various types of documents was stored in different offices. A lot of student-related data were captured and disseminated via a Student Information System (SIS). Data about employee tasks and duties were recorded in job descriptions, performance appraisals/ evaluations, some dedicated databases used for keeping track of certain employee activities, task allocation tables, etc.

The recording of previous practices, best practices, or changes in practices for experience sharing, was not a common practice in the organization.

These were some interesting comments received by some administrators:

"I suspect that people have their own documents and when they leave, they throw them away." (Top Administrator A)

This of course is a typical example of knowledge loss.

Another administrator said:

"I think that documents are collected but probably are not centrally tracked and they are not broadly available and accessible." (Top Administrator L)

Real-time expert contact was used by administrators for IT, legal, taxation and other advice. Some of these experts were the institution's employees and others were external associates. Communication via the phone was mostly used.

Regarding the issue of seeking/using experts here is what some administrators said:

"I contact people based on my perceptions regarding their knowledge and expertise." (Top Administrator J)

"I do not use a network of experts… There may be a need for ad-hoc networks to be created to serve different purposes e.g., different projects. I just have in mind some people specializing on different areas who I consult with when I need them." (Top Administrator L)

Administrators were not making much use of Decision Support Tools. Some analysis of student data were built in the SIS. Additionally, some analytics were used for marketing and digital marketing, advertising, recruiting efforts results' analysis, etc. There was also some built-in functionality in the catalogue and other systems used in the library and in the Learning Management Systems (LMS), mostly Moodle, used for course delivery.

In the absence of other dedicated or not knowledge bases, most administrators reached out to the Internet to fulfil most of their daily job-related information needs such as the need to stay informed about the competition, the local and international state of affairs in the political, economic, and other arenas, etc. Additionally, they checked their emails; received feedback from associates e.g., local and overseas agents; received feedback from students; looked for surveys, read articles, journals, reports, statistical analyses, the local and international press, etc.

"We do not have a bank of research areas/interests by different academics. We need a dynamic database to keep these data." (Top Administrator L)

To conclude, a great deal of data which recorded explicit knowledge were already available in the organization but very little tacit knowledge was recorded.

4.1.2 Organizing and Storing Knowledge

No authority/office was held responsible for the collection of the organization's documented knowledge at a centralized repository. There was a tendency to move from paper to electronic storage and many documents were scanned and stored. Some old documents were also stored by individuals/ departments but no real data warehouses were maintained. Most document storage was done on an ad-hoc basis and individuals and departments stored what they believed was important. Such storage was done on people's personal computers or the email server of the organization for the documents which were transferred via email between organization members. This eventually created an abundant storage of the same exact documents. Some departments used cloud storage facilities such as the Dropbox. Furthermore, there was no Document Management System (DMS) in place at the organization and no Content Management System (CMS) either.

In the accounting department all supporting documents were stored and kept for ten years. Archives of students' past data were maintained in the SIS. Archives of emails were also kept on the email server. Some offices kept extensive archives of the data they were responsible for and some did not.

Several administrators raised their concern about the absence of a central repository and clear directions and responsibilities assigned to a specific office/officer for its maintenance.

One top administrator in fact said when asked about the maintenance of archives:

"No. Big problem. No archives; the university's history is being lost!" (Top Administrator A)

It was a general impression that "documents are scattered around". Many administrators expressed the opinion that it was important to create a repository for the whole organization.

4.1.3 Disseminating/Sharing Knowledge between Those Who Need It, When and Where They Need It

Intra-departmental and inter-departmental collaboration between associates was restricted to personal face-to-face contact, attendance in meetings, over the phone conversations and email exchange. Most tacit knowledge such as best practices, solutions, mistakes, etc. was shared in departmental

meetings. Most knowledge that had been recorded in a written form was shared via email attachments. Some limited use of shared folders and cloud facilities for document storage and exchange was evident. Examples of such facilities used were the Dropbox for cloud storage and Google Docs, an online word processor which offers for real-time collaboration with other people. Most student-related data necessary to support different daily routine tasks were available via the SIS. Some, again student-related, information was passed on between certain departments, specifically the Admissions, Academic Affairs, and the Finance department, using bulletin boards included in the SIS. A different board, called the Collection Info Board, was used to record financial conversations/agreements with the student. This board was of restricted access to a few individuals.

Additionally, some knowledge appears in publications, some regular and some one-time, which were published by the institution. Such publications included a Distance Learning Newsletter, a Corporate Social Responsibility Newsletter, a Student Affairs publication, the Sports Office newsletter, department and school publications, etc.

Effective and efficient communication channels are necessary for knowledge sharing. On this issue the following data were collected:

- **Establishing avenues of communication with students and faculties:**

On the aspect of communication with the students, the student intranet network was the preferred mode of communication for most of the information which was of student interest such as the student's academic record, registration, grades, events organized etc. More student intranet networks were also in place for the delivery of course-related information; for example, a Moodle intranet platform, a second Moodle intranet for distance learning courses and students, a Moodle intranet for PhD students and faculties (under development), etc. Students were many times reached using text messages forwarded to their mobile devices, or through social media networks. The HEI's website was also very inclusive of a lot of information regarding the institution, programs of study, other services, events, associated organizations, etc.

On the aspect of communication of the administration with the faculties there was a faculty intranet network which was mainly enabling the faculty to administer the delivery of courses to students but was also used to support the faculty with certain tasks such as the ordering of books, as well as with information regarding academic and other

policies, faculty evaluations, announcements, useful forms and other. Discussion forums were available via this intranet but they were not promoted or used. Most communication between the administration and the faculty body as well as between faculties, was again taking place via emails which were also used as the main form of disseminating knowledge included in emails as attachments.

- **Establishing avenues of communication with other staff members:**

The absence of a staff network was seen by many administrators as a major drawback in the efforts of staff members, including administrators, to communicate and share information and knowledge effectively and efficiently.

Here are some of their comments:

"No intranet for the staff! – Forms should all be electronically available and submitted electronically." (Top Administrator C)

"...we are planning to create a staff intranet. It has been delayed... The administration uses emails a lot because there is no staff intranet." (Top Administrator I)

To direct all email communication, especially since such communication presented the main form of communication between the organization's employee force including the administration, several email lists had been created and were being utilized. Other than these, no web-based communities, chat rooms, or online forums were used for employee communication. Forums were sometimes used for course content delivery by faculties.

There was currently no portal available to support collaboration, knowledge sharing and document management. Also, there were no IT-enabled internal networks of knowledge employees, and no IT-enabled established Communities of Practice (CoP) such are learning networks, thematic groups, or special interest groups. Many established committees were of course active within the HEI, some academic such are Department committees, School committees, the Senate, etc., some administrative such are the Executive Council, a Marketing committee etc. More committees were established on an ad-hoc basis such as a committee comprised of top administrators involved in Marketing, Communications, Recruitment and Admissions. Collaborations with external partners were also maintained via established bodies such are the Rectors' Council, a Librarians' Union, several academic, professional, research, and other associations and networks.

Limited use of groupware software to support collaboration was made. The technology mentioned

to be used included Dropbox for shared folder access and Google Docs.

Several administrators expressed the viewpoint that more need to be done in relation to disseminating/sharing knowledge and enriching communication, especially the internal communication between members of the staff. As some administrators put it:

"Communication between relating departments may not be developed to the necessary degree." (Top Administrator L)

"Need to provide in a systematic way all this wealth of experience / knowledge / expertise so that someone will be able to use it if they take over a position in our units… We want to establish a system for the transfer of knowledge." (Top Administrator B)

"If we do not have a platform and no infrastructure for knowledge sharing, we cannot talk about motivation. I do not think a lot of the people are aware of this term, KM; maybe we do it without knowing it is that." (Top Administrator J)

On the opposite end some other administrator said:

"There is good communication between relating departments." (Top Administrator F)

As data were stored at the individual or department level it did not necessarily become accessible to others, individuals or departments, who might have had a use for them. In that case they selected to either maintain their own data or do without them.

The institution was doing a good job in organizing and/or holding conferences, trade shows, seminars, educational summits, training sessions, and/or panel discussions. Most of these were organized for the students, some for the faculty, and very few for the staff members. Sometimes they were being organized by the faculty but oftentimes they were organized by the appropriate HEI's offices. The problem was oftentimes attendance.

4.2 Administrators' Opinions Regarding Being a 'Knowledge Organization' (KO)

The last question was asked as a summary of the administrators' viewpoints. Administrators were asked to take a stance whether the institution was a knowledge organization, following a definition of a knowledge organization as a learning organization (LO) that practices KM efficiently.

These were some of the responses to the question whether the institution was a knowledge organization:

"LO Yes. We are in process to become a KO. Moving towards the right direction." (Top Administrator B)

"Problems not recorded. Experts not involved in problem solving. To economize we need to spend." (Top Administrator C)

"Has the willingness to be but it is not structured everywhere. Even academic departments are not keeping a central database. One lecturer that teaches a course and another lecturer teaching the same course may not be sharing any information. Learning is not done in a structured way. We may be confusing the part of what is personal intellectual property and organizationally-collected intellectual property. … It is a problem of policy to achieve efficiency and effectiveness within departments. … There is input – we measure it. The output is not measured! We have the willingness to become a KO but we lack the structure and the how-to." (Top Administrator D)

"No. There is room for improvement to become both a LO and a KO. Some departments may be better at it than some other departments. I may know where to find information and who has it but someone not in an administrative position may not know who to talk to, or the procedure." (Top Administrator F)

"No. Big room for improvement in both directions." (Top Administrator H)

"We are developing but we are not a model of a LO or a KO. There is room for improvement." (Top Administrator I)

"No. Maybe we do sporadically and on an ad-hoc basis. I do not think we have sat down and really thought about it." (Top Administrator J)

"We are quite efficient but could be more efficient with the use of certain IT tools. For example, if we are looking for a document and to find it we need to make several calls then definitely there is room for improvement. We lack KM efficiency." (Top Administrator K)

"… If you asked me whether we would succeed to replace some experienced employee without losing much of his/her knowledge I would say that we would to a 70%, or a percentage above average. Most of the things are documented but we could become a lot better. Between administrative departments since we know what each department is responsible for there is no confusion and no problem in approaching the right people, or those who have the knowledge when we need something." (Top Administrator L)

Before considering the final comments of administrators it is worth noting at this point that there

were no dedicated budgets or spending for KM in the institution. "*We provide funds when a need arises*" an administrator said. This ascertainment could relate to some of the comments made below.

4.3 Identifying the Need for Knowledge Management and Other Suggestions

Administrators' views often pointed out a need for KM practices and offered justification for KM efforts to be initiated even though not all felt comfortable using the term KM. These were some of their comments and/or suggestions:

"KM practice should be considered a critical success factor. The institution does not really measure the effectiveness of its KM practices. We need to invest diligently in KM." (Top Administrator B)

"There has not been a specific identification of the need for KM." (Top Administrator D)

"We need a system that will unite all the systems found in the different offices to bring all the knowledge together for people to use it." (Top Administrator E)

"I am still not sure if I fully understand the concept of KM. If it only involves the sharing of knowledge then that is something we do all the time. I am assuming there is something else behind it as well. I like this idea about a portal that will collect everything; I believe it will be very useful; we do not have it and it would be very important to proceed with such a portal's creation. ... Most of the things are documented but we could become a lot better." (Top Administrator L)

"... It is something that I believe it is of paramount importance, that we should be using it and it is a matter of people getting accustomed to this culture of thinking." (Top Administrator J)

"We understand the importance of KM and transfer of knowledge but the main challenge for us is time. We need to invest if we want to develop this the right way so unless we have time to invest, both in terms of human resources and financial resources, we are going to develop something which is not going to give us the ultimate that we can get. We need to invest on it!" (Top Administrator B)

"There is commitment in the organization from people in this direction. Every time we approach people with information there is response, there is readiness, but sometimes it is hindered by the fact that people may not have the time to get involved in processes that would facilitate this process. ... We are under-staffed in many departments due to financial constraints." (Top Administrator I)

"IT systems and support within the university is suffering. There are no systems that would allow the sharing of knowledge, sharing of documents, collaborative work, ... I hope that the organization gets convinced about the need for more IT support and in particular the need for IT support for KM and that a more systematic approach is introduced relating to the introduction of IS in the organization. As a first step an MIS director could be appointed and be a member of the Executive Council so as to bring IS-related issues at this top decision-making body. All moves currently made are non-systematic and may be spasmodic but they are not recognized as such by the executive board and others who are not aware of what IT and IS have to offer." (Top Administrator K)

"There is great room for IT and IS utilization in the direction of KM." (Top Administrator L)

5 FURTHER RESEARCH AND CONCLUDING REMARKS

In conclusion, there seemed to be big room for improvement in many areas which related to KM and the implementation of KM practices. In particular, administrators felt that immediate efforts should be directed to establishing collaboration channels especially between employee members of the organization. The absence of a portal to support collaboration, knowledge sharing and document management was especially noted. The availability of a faculty and a student intranet was enabling the distribution of some information to these two groups. But, the unavailability of a basic staff intranet network was seen by several administrators as a drawback in their efforts to collaborate with colleagues, staff members, and to share knowledge and information. Plans for the creation of a staff network were on the way.

The study which was initiated on KM helped the HEI administration establish the need for taking action towards creating a KM strategy and implementation plan. The present study though it only investigated the current status of the HEI practices in KM, has set the way forward.

The next steps will include investigating a KM strategy and appropriate methodology to be used by HEIs in establishing KM.

As mentioned earlier this study may serve to broaden our understanding regarding establishing KM in HE.

REFERENCES

Arntzen, A., Worasinchai, L., & Ribiere, V. (2009). An Insight into Knowledge Management Practices at Bangkok University. *Journal of Knowledge Management, 13*(2), 127-144.

Bhusry, M., & Ranjan, J. (2011, September). Knowledge Collaboration in Higher Educational Institutions in India: Charting a Knowledge Management Solution. *International Journal of Computer Science Issues, 8*(5(3)), 332-341.

Blackman, D., & Kennedy, M. (2009). Knowledge Management and Effective University Governance. *Journal of Knowledge Management, 13*(6), 547-563.

Boulton, G., & Lucas, C. (2008). *What are Universities for?* (ed.): LERU (League of European Research Universities).

Browne, J. (2010). *Securing a Sustainable Future for Higher Education: An Independent Review of Higher Education Funding & Student Finance.*

Central, S. (2007). *Focused (Semi-structured) Interviews.* Retrieved August 2021, from Sociological Research Skills Research Methods: http://www.sociology. org.uk/methfi.pdf

Chugh, R. (2017). Barriers and Enablers of Tacit Knowledge Transfer in Australian Higher Education Institutions. *International Journal of Education and Learning Systems, 2*, 272-276. Retrieved August 2021, from http://www.iaras.org/iaras/filedownloads/ijels/20 17/002-0029(2017).pdf

Chung, R. (2015). Do Australian Universities Encourage Tacit Knowledge Transfer? *7th International Joint Conference on Knowledge Discovery, Knowledge Engineering, and Knowledge Management*, (pp. 128-135).

Cranfield, D., & Taylor, J. (2008). Knowledge Management and Higher Education: a UK Case Study. *The Electronic Journal of Knowledge Management, 6*(2), 85-100.

Debowski, S. (2006). *Knowledge Management* (ed.). Milton, QLD: John Wiley & Sons.

GOV.UK. (2021, 06 16). *Knowledge Transfer Partnerships: What the are and how to apply.* Retrieved from GOV.UK: https://www.gov.uk/guidance/know ledge-transfer-partnerships-what-they-are-and-how-to-apply#what-is-a-knowledge-transfer-partnership

HEFCE. (2009, June). *Strategic Plan 2006-11.* Retrieved from Higher Education Funding Council for England (HEFCE): www.hefce.ac.uk

Hussey, R., & Hussey, J. (1997). *Business Research: A Practical Guide for Undergraduate and Postgraduate Students* (ed.). New York: Palgrave.

Kidwell, J., Vander, L., Karen, M., & Johnson, S. (2001). Applying Corporate Knowledge Management Practices in Higher Education. In G. (Bernbom, *Information Alchemy: The Art and Science of Knowledge Management. EDUCAUSE Leadership Series 3* (pp. 1-24). San Francisco: Jossey-Bass.

Laal, M. (2011). Knowledge Management in Higher Education. *Procedia Computer Science, 3*(Available online at www.sciencedirect.com), 544-549 .

Milam, J. (2001). *Knowledge Management for Higher Education. ERIC Digest.* Washington, DC: ERIC Clearinghouse on Higher Education.

Ojo, A. (2016). Knowledge management in Nigerian universities: A conceptual model. *Interdisciplinary Journal of Information, Knowledge, and Management, 11*, 331-345. Retrieved August 2021, from https://www.researchgate.net

Pavlou, P. (2001). *The Application of Quality Driven Assessment Models in the Health Care Sector; Unpublished PhD Dissertation.* University of Salford.

Petrides, L., & Nodine, T. (2003). *Knowledge Management in Education: Defining the Landscape.* Retrieved August 2021, from Institute for the Study of Knowledge Management in Education: www.iskme.org

Ramachandran, S., Chong, S., & Ismail, H. (2009). The Practice of Knowledge Management Processes; a Comparative Study of Public and Private Higher Educaiton Institutions in Malaysia. *The Journal of Information and Knowledge Management Systems, 39*(3), 203-222.

Robson, R., Norris, D., Lefrere, P., Collier, G., & Mason, J. (2003). Share and Share Alike: the e-Knowledge Transformation Comes to Campus. *EduCAUSE Review Online, Sept. Oct.*(https://net.educause.edu/ir/library/ pdf/erm0351.pdf).

Rowley, J. (2000). Is Higher Education Ready for Knowledge Management? *The International Journal of Educational Management, 14*(7), 325-333.

Stylianou, V. (2015). *Educational Intelligence; Knowledge Management and Higher Education: A Case Study Using a Stakeholder Approach.* DProf. Dissertation; Middlesex University, UK.