Organizational Culture and Knowledge Management Initiatives among Higher Education Institutions: Inputs to Knowledge Management System Implementation Plan

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Abstract

The objective of Knowledge Management (KM) is to transform individual knowledge using a systematic approach to become organizational knowledge that will enhance both individuals and organization's performance. It is an on-going process that has to be viewed as a long-term business strategy and requires the synergy between these three components: people, technology, and processes. The implementation of KM is not an easy undertaking since capturing one's knowledge is difficult. The difficulty is doubled if there is no established organizational culture, no guidelines for processes, technologies are limited, and the initiative is not aligned with the organization's strategy. This study used a quantitative descriptive survey research design to perform assessment on organizational culture, KM initiatives, and technologies used in the selected Higher Education Institutions (HEIs) in Muntinlupa City, Philippines. A total of 141 respondents from three Institutions took part in the survey and 16 key informants for validation of survey results. The survey revealed that the dominant organizational culture type was clan culture which signifies the presence of a strong sense of belonging and personal identification within the organization which helped them in the preparation for accreditation or certification through the various engagements of KM initiatives such as creation, capturing, organizing, applying and disseminating knowledge. As for the technologies being utilized, there were information systems, internet, and intranet available; however, the HEIs were not using them to further perform KM due to the lack of appropriate technologies. Similarly, factors affecting the utilization of technologies were lacking technical skills, no mechanism to monitor utilization, no project champion, process guidelines, and limited budget for acquisition of latest infrastructure.

Keywords: organizational culture, knowledge management, knowledge management initiatives, knowledge management system, knowledge management technologies

1. Introduction

The objective of KM is to transform individual knowledge using a systematic approach to become organizational knowledge that will enhance both individual and organization's performance. It is an ongoing process that has to be viewed as a long-term business strategy and requires the synergy between these three components: (a) people, refers to the behavior of the organization's members to ask, listen and share; (b) technology, is associated with the common reliable technology infrastructure; and (c) processes, to simplify sharing, validation and distillation (Collison & Parcell, 2004)

The potential of KM is very promising and the HEIs may benefit from it when utilized accordingly. HEIs can make their strategic planning stronger by institutionalizing a Knowledge Management System (KMS) to develop their core processes in instruction, research and community extension services. However, the importance of KM has yet to be realized and the literature provided the following factors: (a) the knowledge management implementers concentrated in the area of KM processing with emphasis on information systems (Jones, 2010) and use of information technology (Zack, 2002) instead on the knowledge to be created and managed; (b) the undertaking of the organization should be aligned with their strategy so that they will be able to obtain the right knowledge assets not just acquiring it efficiently (Chew, 2008); (c) the pressure intensifies for organizations to implement KM and organizational culture should be given more emphasis because strong organizational culture creates both stability and adaptability for organizations (Cameron & Quinn, 2006).

The study utilized the Organizational Culture Assessment Instrument (OCAI) which is based on a theoretical model known as the Competing Values Framework (CVF). Each continuum highlights a core value that is opposite from the value on the other end of the continuum—flexibility versus stability, internal versus external. The competing or opposite values in each quadrant give rise to the name for the model, the

CVF. These indicators of effectiveness represent what people value about an organization's performance. The four Schools of criteria define the core values on which judgments about organizations are made. What is notable about these four core values is that they represent opposite or competing assumptions (Fernandez & Sabherwal, 2010). The Four Major Culture Types are: (a) Hierarchy Culture is characterized by a formalized and structured place to work; (b) Market Culture is a results-oriented workplace; (c) Clan Culture is like an extended family. The organization places a premium on teamwork, participation, and consensus; and (d) Adhocracy is characterized by a dynamic, entrepreneurial, and creative workplace.

Knowledge Management Processes. In the study conducted by Lawson (2003) combined several works Wigg (1993); Parikh (2001); Horwitch and Armacost (2002) to come out with six KM processes: (1) Creating Knowledge: knowledge is created through discovery, that is, employees developing new ways of doing things or it is brought in through external sources; (2) Capturing Knowledge: new knowledge is identified as relevant and valuable to current and future needs; (3) Organizing Knowledge: new knowledge is refined and organized; (4) Storing Knowledge: codified knowledge is stored in a reasonable format so that others in the organization can access it; (5) Disseminating Knowledge: knowledge is personalized and distributed in a useful format to meet the specific needs of users; and (6) Applying Knowledge: knowledge is applied to new situations where users can learn and generate new knowledge. These KM processes must be actively implemented in the organization to make it as strategic advantage (Lawson, 2003). Each process makes up a component of the dependent variable to be used to measure knowledge management activity within organizations.

Knowledge Management Enabling ICT and HEIs Processes. According to Sulisworo (2012) by implementing knowledge management, organizations can increase the capability of managing and utilizing their knowledge, and ultimately achieve superior performances.

- **HEIs process activities.** The core business processes of the HEIs are divided into six main core processes which are: product development; marketing; registrar activities; teaching and learning; assessment and examination and student activities. The objectives of all these core business processes are to fulfill customer requirements; to obtain customer feedback and to ensure customer satisfaction: product development; marketing; registration; teaching and learning; assessment and examination; and, student activities.
- Enabling ICT. Several KM enabling ICT tools and networks were identified to be relevant for developing the proposed framework due to their significance in carrying out KM roles. These include Knowledge Portals, Electronic Document Management Systems, Academic Publishing, Academic Contents and Exchanges, Database Management Systems (DBMS), Data Warehouse, Data Mining, Groupware, Communities of Practices (CoP), Social Communities of Interests, and Individual Communities of Interests. Listed below are the KM Enabling ICT Tools.
- **Knowledge Management Performance**. Most of the literature connects the success of KM effectiveness with the result of organizational performance, which can be established into three aspects: efficiency, adaptability and innovativeness. Efficiency refers to lower costs and increases productivity. Adaptability is the capability to adapt to the attitudes, culture, technology and structure of the organizations appropriate to changes so that the environmental impacts will not be obstacles to the development of the organizations. Innovativeness is the knowledge integration via knowledge management platforms, tools and processes must therefore facilitate reflection and dialogue to allow personal and organizational learning and innovation.

Knowledge Management in HEI is very promising but its implementation would require the synergy between these three elements: people, process, and technology to maximize its potential. Thus, this study was conducted to answer the following questions: what is the dominant organizational culture type of the HEIs; what are the current knowledge management initiatives in the HEIs; and, what are the technologies used by the HEIs and for what purpose? Finally, how to use the findings for the development of a framework for a KM system implementation plan for an HEI.

There are eleven HEIs producing the workforce of Muntinlupa City and these HEIs were necessitated to contribute through the improvement of the quality of education through accreditation; however, the preparation for accreditation is not an easy task. These institutions must be able to create, capture, organize, disseminate and apply the stored knowledge to every day dealings with the internal and external environment. The implementation of KM is not an easy undertaking because capturing one's knowledge is difficult. More so, if there is no established organizational culture and processes, limited technologies, and knowledge management is not aligned with the organization's strategy.

2. Objectives

The general objective of this study was to analyze the dominant organizational culture type and the knowledge management initiatives in the higher education institutions in the city of Muntinlupa. Philippines. Also, the technologies in the core processes as well as the KM technologies were identified. Subsequently, the results were used as inputs to the development of knowledge management system implementation plan for higher education institutions with the goal of sustainable quality performance.

3. Materials and Methods

In this study, the descriptive survey method was implemented to have a direct source of valuable knowledge on the organizational culture type and KM initiatives by the selected HEIs in Muntinlupa City, Philippines. Descriptive statistics such as frequency, percentage, and median were used to describe the organizational and respondents' profile. The interview was done with selected key informants to validate the results on the survey.

The study was conducted in phases; the first phase was using a survey method followed by an interview with key informants for validation of the results to determine the current set-up and utilization of technologies. A total of 141 questionnaires were usable from the survey and 16 key informants were interviewed. The faculty members both from full-time and part-time faculty members, staff and administrators were the composition of the survey and interview.

In the survey, the following instruments were used: (a) Organizational Culture Assessment Instrument (OCAI) by Cameron and Quinn (2006) and (b) Knowledge Management Assessment Instrument (KMAI) by Lawson (2003); (c) and Demographic Profile of Respondents. The OCAI and KMAI consisted of 24 statements and each statement utilizes a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The test for internal consistency for both OCAI and KMAI demonstrated sufficient reliability since the scores for each construct exceeded the 0.70 minimum.

4. Results and Discussion

4.1 Organizational Culture Type of the HEIs

The members of the institution A perceived that the dominant organizational culture type was Clan with 86% as shown in Table 1. In a Clan culture, the following characteristics such as shared values and goals, cohesion, participativeness, individuality, and a sense of "we-ness" were being experienced by the respondents. Adhocracy was the least of the culture types perceived to be present in the Institution.

Culture Type	School A	School B	School C
Clan	86%	57%	79%
Market	84%	55%	73%
Hierarchy	77%	51%	73%
Adhocracy	74%	49%	71%

Table 1 Percentages of agreement on the dominant culture in all school	ls
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In School B, the respondents perceived that their dominant organizational culture was Clan as 57% of them agreed to it as shown in Table 1. Following closely is Hierarchy and Adhocracy, on the other hand, was the least of the culture type perceived as present in the institution. Similar with the other institutions, School C was seen by the respondents to have Clan as the dominant culture. Hierarchy and Market were the second in the rank and the least was Adhocracy culture type.

4.2 KM Initiatives of the Selected HEIs

According to the computed frequencies and percentages in Table 2, all knowledge management initiatives were being performed in the institution A. Creation of knowledge obtained the highest percentage of 85% while the storing of knowledge was perceived by the members of the institution to be the least knowledge management initiative, specifically, the mechanisms to patent and copyright new knowledge.

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KM Initiative	School A	School B	School C
Creating Knowledge	85%	38%	74%
Capturing Knowledge	83%	40%	69%
Organizing Knowledge	77%	48%	68%
Storing Knowledge	58%	40%	58%
Disseminating Knowledge	78%	54%	68%
Applying Knowledge	78%	41%	66%

Table 2 Percentages of agreement on KM initiatives in all schools

In School B, all of KM initiatives got below 50% agreement from the respondents with the exception of dissemination of knowledge which got 54%, as shown in Table 2. Moreover, in all of the knowledge management initiatives there were about 30% - 42% of the respondents who were not sure of the KM initiatives. This implies that respondents were not at all familiar with the activities being performed in this institution considering that 80% of the respondents had been with the institution for more than two years.

School C was actively involved in all knowledge management initiatives as can be seen in the percentages of agreement in Table 2. The creation of knowledge obtained the highest percentage of all the initiatives. The results imply that the organization has mechanisms for creating new knowledge from existing knowledge and uses lessons learned and best practices from projects to improve successive projects. The lowest percentage was received by the storing knowledge initiative. Although the percentages of agreements were all above 50%, the percentages on the unawareness or being uncertain on the KM initiatives should still concern the administration of the institution since all members of the institution must be fully aware of the activities being done to improve the quality of services being offered to its customers or students.

4.3 Technologies Used by the HEIs

Information Technology can be any technology through which information can be collected. In the use of technology, one must always remember that it is a means, not an end in itself. Technology in the broadest sense is the application of modern communications and computing technologies to the creation, management and use of knowledge.

In this study, supervisors of the technology being utilized in the institution were invited to join in the semi-structured interview to shed some light in the utilization of different technologies as it is being used in the core processes of the selected HEIs. The Office Productivity Tools (word processing, spread sheet, and presentation), Internet, Intranet, desktop, and laptop were the most common tools used by all schools in these core processes: product development, marketing, registration, teaching and learning, assessment and examination & student activities.

Product Development: the current technologies utilized for the product development or program development present in the three schools that are part of the study are: office productivity tools, Internet, and desktop. These technologies were utilized primarily to, "develop programs or courses, to evaluate the effectiveness or conduct appraisal of the programs offered". The online survey tools and online tracer study were used to, "carry out survey to ensure the programs offered are able to meet the expectations of the parents and students requirements". Only School C that is utilizing online survey tools get feedback from their customers.

Marketing: the current technologies utilized for marketing in the three schools that are part of the study are: office productivity tools, Internet, desktop, social networking sites and websites which are utilized primarily for "displaying of academic programs, information of the school, and current activities of the school". Only School B also utilizes multimedia presentation to "create marketing materials for their

school". School C also utilizes online survey tools to, "conduct surveys on customer perception and the rest are using social networking site to get feedback in the effectiveness of the marketing activities."

Registration: the different technologies utilized by the selected schools for school registration are: all schools have student registration system, database management, Internet, Intranet, desktop, and laptop which covers students' activities such as registration, collection of tuition fees and bad debts, and releasing of academic transcripts. However, it is only School C which has online enrollment and academic information system because "we now have 11,000+ students and we are looking for strategies on how we can efficiently accomplish the enrollment process and store and retrieve the records". The other two schools were still utilizing office productivity tools for these activities.

Teaching and Learning: the faculty members of the institutions were utilizing office productivity tools to "create materials and are using the internet to deliver the knowledge to students through online learning management systems and social networking site". Other technologies such as library management systems, database management systems, and computer laboratories were also present to ensure the effectiveness of the teaching and learning process. Tablet device was also being utilized in School B to "deliver the eLearning courses of the students" and School C had this to say regarding the tablet device, "we have included tablet devices for acquisition this academic year". Only School A was utilizing tools for grammar and plagiarism to "improve the portfolio and eliminate plagiarism and learn to value their works and works of others".

Assessment and Examination: faculty members of the three institutions were utilizing office productivity tools in the creation of test questionnaires and they were required to submit copies both in soft and hard copies. Copies of these questionnaires were also being kept for the purpose of reviewing and auditing. Formative assessment like assignments and quizzes are being used in the eLearning courses. The schools were also carrying out evaluation of examination results through statistical analysis with the use of Spread Sheet Application Microsoft Excel.

Student Activities: technologies utilized in important students' activities such as the promotion of annual foundation week, college weeks, students' election and students' co-curricular activities were office productivity tools, social networking site, website, Internet, and computers. School C was the only one utilizing an electronic voting system simply because "we have large number of students and if we want the results immediately we need to make use of the technology". None were mentioned the utilization of technology in obtaining feedback from students on the effectiveness of the students' activities conducted by the student council.

Knowledge Management: critical to the knowledge management is the utilization of specific technologies to collect data then process it to produce information; however, the information must not only be accessible but must be in a form that is usable for the users. Consequently, the technologies: management system, data warehouse, data mining, and wireless internet connection were necessary to properly manage the knowledge of the institutions. The institutions that were part of the study were utilizing Intranet for internal electronic-based communication system, and availability of wireless Internet connection that can be accessed by staff and students. There was an academic information system to collect copies of course materials and syllabus; however, this was similar to academic information system that was not fully utilized or maximized in order to process information that can be used for decision making. It is also interesting to note that none of the schools was using or promoting knowledge portal or digital libraries for electronic access to academic publications, lacking were project management application, data warehouse, and data mining tools. The common reason for not acquiring KM technologies was due to "limited budget allotted to technology" and "limited personnel to supervise them".

4.4 Factors affecting the use of technology in the three institutions

The following are the factors affecting the use of technology in the three institutions: (1) resistance in the use of technology, (2) lack of technology skills by members of the institution, (3) no mechanism to monitor utilization of technology, (4) little or no support in acquiring or adopting newer technologies due to budget issues, (5) lack or limited human resources to perform technical skills, (6) slow internet connection, (7) lack of technology infrastructure to support the needs of the institution, and (8) no established guidelines for processes. All of these eight factors were present in the institutions except for those in School C because they have very few faculty members in the College and they outsourced their technology.

5. Conclusions

The study was conducted to investigate the role of organizational culture in the knowledge management initiatives in selected higher education institutions. It also sought to determine the different technologies being utilized by the selected institutions in their core processes and knowledge management initiatives. The following were the conclusions drawn from the findings:

- The knowledge management initiatives are being performed in the selected higher education institutions. However, the lack of awareness and familiarity with the activities in KM somehow has an impact on the support provided by the members of the institution.
- The most common knowledge management initiative implemented is the creation of knowledge. This indicates that the members of the institutions believe that it is their responsibility to create knowledge since they are employed in academic institutions.
- The knowledge management initiative which is not commonly implemented is the storing of knowledge. This implies that the guidelines for processes and the different ways to store knowledge in these institutions are not implemented or being monitored resulting in poor storing of knowledge. The storing of knowledge is an essential activity in an HEI and poor administration would result in unavailability of the needed data, information, and knowledge for activities such as accreditation and certification.
- The typical information systems such as computerized registration systems, financial management systems, eLearning, and library systems are present in these schools. However; they do not utilize the outputs of these systems and perform knowledge management due to lack of appropriate KM technologies.
- The use of the technologies is affected by the lack of project champion or leadership to support its conception and implementation. This finding is similar to the findings of the study conducted by Songsangyos (2012) in Maejo University and Payup University in Thailand. The researcher said that one of the barriers to knowledge management is the organization's leadership. The management must understand and realize the benefits of the knowledge management to the organizations, communicate it to push for management of knowledge continuously.
- The use of the technologies is affected by lack of skills of the members of the institutions. This is confirmed by the work of Songsangyos (2012) who said that the faculty members' lack of knowledge and skills in using information technology hampers the communication or sharing of knowledge.
- Finally, the study uncovered that the goals of the HEI must first be identified and strategies such as KM implementation must be aligned with the goals of the institution. The initial task for the KMS implementation plan was to determine the quality improvements goals and strategies of the HEI. The consideration of the customer needs, industry needs, and quality standards were the fundamental inputs to the identification of the goals and strategies. In the same manner, the three elements of knowledge management must also be aligned with the goals and strategies of the HEI. Based on the findings, the following are the suggested inputs to form part of the framework for the knowledge management system implementation plan for HEI as shown in Figure 1.

People. People were considered to be the main component of KM and the KM process starts and ends with the initiative of the people involved in the activities. Based on the conducted study, the foundation that supported a successful implementation of the KMS were organizational culture audit, capacity building of skills and specialization, and positioning the right people as project champion, KM officer, and IT specialists.

The culture audit is essential to know the appropriate or preferred culture for the strategic implementation of the goals of the HEI. The assessment of the technical skills is necessary to know the capabilities of the members of the institution and to better the training they would need. KM Awareness may also be conducted prior to the full implementation of KM. KM is dependent on the knowledge or specialization of the people in the organization thus the need for them to be updated with the latest trends, issues, and research in their field of specialization. Support from the leaders of the



institution, creation of KM Officer Position to oversee KM implementation. IT specialists are also important to design, develop, and maintain the different technologies needed for KM implementation.

Figure 1 Framework for the KMS Implementation Plan for HEI

Process. The establishment of the guidelines for different processes of the organization is crucial in the implementation of the knowledge management system. The development of the guidelines on the different core processes must be done together with the respective offices who are implementing the process so that their input in the streamlining would help in the formulation of correct or exact guidelines for that particular core process. Provide different means and ways so that these guidelines will be available to all members of the institution.

Similarly, the institution must determine which KM mechanisms are appropriate for their people. In this study, the members of the selected institutions suggested the following to better improve the sharing of knowledge in the institution: community of practice, learning by observation and learning from external sources, learning new things from external environment, the use of best practices, dissemination of information with the use of technology and traditional means, and access to knowledge portal such as online library are the mechanisms that were suggested for sharing of knowledge in the institution.

Technology. The key to the design, development and implementation of any business information systems is dependent on how the people who are performing the tasks would collaborate and be part of the project. Also, the development of an information system does not depend on technology alone. Systems are based on the processes being performed in the institution and people must be involved in its development to correctly capture the processes of the institution through their stories. The study was able to determine the core technologies being utilized by HEIs in Muntinlupa City and these are: Office Productivity Tools (word processing, spread sheet, and presentation), Website, Social Networking Site, Internet, Intranet, Desktop, Laptop, and Database System are the most common tools used by all schools in these core processes: product development or curriculum development, marketing, registration, teaching and learning, assessment and examination, & student activities.

In addition to the common technologies, the following were also identified: online survey tools, online tracer study, multimedia presentation, computerized registration, financial record management system and database management system, eLearning, online grammar and plagiarism checker, use of tablet device to access the eLearning courses, and student electronic voting system.

In this study, the HEIs in Muntinlupa have yet to utilize KM technologies which are critical to knowledge management. However, these institutions were already utilizing intranet for internal electronic-based communication systems, and wireless internet connection that can be accessed by staff and students and academic information systems

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7. References

- Cameron, K. S., & Quinn, R. E., (2006). *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*. San Francisco. Jossey-Bass.
- Chew, K.C. (2008). An Exploratory Case Study: Knowledge Management Managing Organizational Knowledge Assets by Aligning Business Strategy, Knowledge Strategy, and Knowledge Management Strategy (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 3345511).
- Collison, C., & Parcell, G. (2004). Learning to Fly. Practical Knowledge Management from Leading and Learning Organizations. Chichester, UK: Capstone Publishing Limited.
- Fernandez, I. B., & Sabherwal, R., (2010). *Knowledge Management Systems and Processes*. Armonk, NY, USA: M.E. Sharpe, Inc.
- Horwitch, M., & Armacost, J. (2002). Helping knowledge management be all it can be. *The Journal of Business Strategy*, 23(3), 26-31.
- Lawson, S. (2003). Examining the Relationship between Organizational Culture and Knowledge Management (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 3100959).
- Jones, M. B. (2010). Organizational Culture and Knowledge Management: An Empirical Investigation of U.S. Manufacturing Firms (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. 3388995).
- Parikh, M. (2001). Knowledge management framework for high-tech research and development. *Engineering Management Journal*, 13(3), 27-33.
- Songsangyos, P. (2012). The Knowledge Management in Higher Education in Chiang Mai: A Comparative Review. *Procedia Social and Behavioral Sciences*, 69, 399-403.
- Sulisworo, D. (2012). Enabling ICT and Knowledge Management to Enhance Competitiveness of Higher Education Institutions. *International Journal of Education*. 4(1), 112-121.
- Wigg, K.M. (1993). Knowledge Management Foundations. Texas: Schema Press.

Zack, M. H. (2002). Developing a Knowledge Strategy. In N. Bontis & C. Choo (Eds.), The Strategic

Management of Intellectual Capital and Organizational Knowledge: A Collection of Readings. Oxford University Press.