PROBLEMS AND OBSTRUCTIONS ON KNOWLEDGE MANAGEMENT OF HIGHER EDUCATION INSTITUTION: A CASE STUDY OF RAMKHAMHAENG UNIVERSITY, THAILAND

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ABSTRACT

Higher institutions usually manage knowledge for effective teaching process and administration purposes. Knowledge for the teaching process is systematically organized especially under the regulations of governmental controlling units. Teaching in different sections, although by different teachers, should maintain similar contents and standards. Many documents must be filed, copied, and reported and shared. Knowledge in the administrative system is documented and usually directed to particular respondents but not shared much to other departments. This study investigated the process of knowledge management at Ramkhamhaeng (RU) University, a large open-admission public university in Thailand by synthesizing frameworks proposed by (Demarest, 1997; Marquardt 1996; Probst, Raub, & Romhardt, 2000; and Turban & Aronson; 2001) that included knowledge acquisition and creation, storing and retrieval, distribution, and application. The knowledge management system involves gathering implicit and explicit knowledge in the organization, combining, storing, and disseminating the knowledge throughout the organization. Delphi technique was used in three rounds of interview with eighteen experts in the university. Results suggested 10 major problems and obstructions of knowledge management of the university i.e., the understanding of knowledge management, ability to employ new information technology systems, resistant to change, inability to utilize electronic gadgets, information inadequacy, relationship among units in the university, systems for learning, the misunderstanding of the significance of knowledge sharing, the organization culture, and motivation to learn.

INTRODUCTION

Organizations in the globalization era are fueled by the utilization of quality and productivity of knowledge (Drucker, 2007). The industrial-based society is transforming into the information or innovation-based society (Toffler & Toffler, 2006). Information and knowledge are becoming more important than tangible assets such as land, building, machine, and etc. as essential tools to compete in the market (Kaplan & Norton, 2004). Knowledge residing in each employee should be utilized and shared so that organizations would be able to respond and deliver values to consumers. Many organizations, including Ramkhamhaeng University (RU), are introducing Knowledge Management (KM) processes into their operations. Knowledge Management process is an important tool to develop knowledge, skills, and capability of people in organizations (Nonaka, 1994). These processes aim at discovering and capturing tacit knowledge and make them explicit to be shared and applied in organizations (Fernandez, Gonzalez, & Sabherwal, 2004). It is a social interaction process that can create a knowledge community (Raza, Kausar, & Paul, 2007).
This paper investigated problems and obstructions of the KM process at RU both in the academic and administrative parts. The identification of problems and obstructions against the implementation of KM would provide an insight regarding the barriers and lead to the development of appropriate strategies to promote KM in RU and similar kinds of organizations. It will become the basis for RU to conduct further research in KM and relevant issues.

LITERATURE REVIEW

Davenport and Prusak (2000) maintained that knowledge is the integration of experience, values, understanding of context, and wisdom. This integration becomes the frame of reference that people use to appraise new experience and information. Knowledge in organizations is accumulated in employees, documents, work processes, and norms. It should be shared among personnel. Davenport and Prusak (1998) suggested that KM offered several benefits to organizations including leveraging core competencies, accelerating innovation, improving cycle times, strengthening organizational commitment, and building sustainable competitive advantage. KM focuses on organizing and making important knowledge available when and where it is needed. In order to obtain such benefits, organization should devise a process to tap the knowledge residing in the minds of employees or leaders and share it to others.

Knowledge can be classified into tacit and explicit knowledge (Awad & Ghaziri 2004; Choo, 2000). Tacit knowledge refers to personal insights, experience, and intuitions (Duffy, 2000), that is not organized so it is difficult to express and formalize. This kind of knowledge is personal and is difficult to delineate to others. Explicit knowledge refers to knowledge that is structured and documented (Duffy, 2000). This type of knowledge can be readily read or shared with others. Much knowledge for academic purposes is compiled into explicit forms such as books, video tapes, audio tapes, and others while some knowledge among the administrators were exchanged through face-to-face communication basis and were not recorded in an explicit form. Markus (2001) argued that only explicit knowledge could be processed by information technology. Hence, an important step in KM is to make tacit knowledge explicit.

Knowledge Management

Gordon (2005) and Smith, Collins, and Clark (2005) agreed that KM was related to the creation of a learning culture where organizational members gather knowledge and share it with others. Freeze and Kulkarni (2007) supported that expertise, lessons learned, policies, procedures, data, and knowledge documented are important intangible knowledge assets that organizations could leverage upon. KM is a cultural and organizational issue rather than a technological issue (Brand, 1998). For example, Aridchvili et al., (2006) found that cultures high on power distance tend to share less knowledge, in spite of available technology. Fernandez, Gonzalez, and Sabjerval (2004) defined KM as “doing what is needed to get the most out of knowledge resources” (p. 2). KM aims at tapping and utilizing tacit knowledge of all employees in the collective level. Dyer and McDonough (2001) provided empirical evidence suggesting that KM influenced the improvements in the individuals, processes, products, and organizational performance level. They also found that top three reasons US firms use KM were (a) to retain expertise of employees, (b) to enhance customer’s satisfaction, and (c) to increase profits.
Nonaka and Takeuchi (1995) suggested a model to transfer tacit knowledge into explicit knowledge. This model is named the SECI-Knowledge Conversion Process Model. The model describes that an individual employee captures explicit knowledge from his/her exposure to external sources such as customers, suppliers, competitors, the public, and etc. This knowledge is linked and combined with current personal frame of reference to create personal understanding of the issue or know-what. After practicing the knowledge learned, that knowledge is internalized into personal experience and wisdom, i.e. tacit knowledge or know-how. The new tacit knowledge, then, is socialized through dialogue with others and organized into explicit knowledge for further externalization.

Previous research suggested various steps for the management of knowledge. Marquardt (1996) suggested knowledge acquisition, creation, storage, and transfer. Demarest (1997) suggested knowledge construction, embodiment, dissemination, and utilization. Probst, Raub, and Romhardt (2000) suggested knowledge identification, acquisition, development, transfer, storing, and utilization. And lastly, Turban and Aronson (2001) suggested knowledge acquisition and creation, organization and storage, distribution, and application. These steps help converting knowledge from external sources to be internal. In this paper, the said KM steps were combined into 4 steps, i.e. knowledge acquisition and creation, storing, distribution, and application. Greiner, Bohmann, and Kremar (2007) suggested there are relationships between the implementation of KM programs and business strategy. The KM processes should have a strategic focus in order to have a scope on selective information and knowledge that are relevant to the strategic decisions.

Knowledge acquisition and creation

Knowledge acquisition and creation is a dynamic social process through the interaction between tacit and explicit knowledge (Nonaka et al., 2000). Tacit or explicit knowledge can be captured from external sources or across departmental sources through activities such as benchmarking, conferences and seminars, meetings, mass media, etc. This knowledge is learned and synthesized with existing knowledge to create new sets of knowledge, which are later organized into new sets of explicit knowledge in the organization or department. This process includes the transfer of tacit knowledge from one person to tacit knowledge of others as in case of apprenticeship. It can be the transfer of tacit to explicit (externalization), explicit to tacit (internalization), and explicit to explicit knowledge. The acquisition and creation of knowledge is a social construct resulted from the interaction among data, information, knowledge, wisdom of personnel, and environment (Faucher, Everett, & Lawson, 2008).

Knowledge storing

Knowledge created or acquired should be organized into categories. These categories can be either memorized among staff or documented. The storing of knowledge should take into consideration the accuracy and convenience in retrieval. Electronic devices can be of great help in this process as Fernandez, Gonzalez, and Sabjerwal (2004) had described that modern technology enables the KM process. Information Technology enables the implementation of KM in sorting, storing, and retrieval of large amount of information as well as to distribute them. Hall (2000) emphasized the need to use codes that personnel are able to interpret, the ability of personnel to decode stored knowledge is crucial for transferability of knowledge.
Williams (2006) argued that knowledge is dynamic and is subject to change. Knowledge stored should receive periodical review and updated. KM is not simply about recoding knowledge but needs to address which piece of knowledge is implicit and the way to derive benefits from such knowledge, hence, the process is more important than the content (Gao, Li, & Clarke, 2008).

Knowledge distribution
Organizations should devise methods to disseminate information to relevant personnel in an appropriate and timely manner. Planning for communication system is essential, for example, internal memo, reports, bulletin board, training, briefing, or grapevine, etc. The organization should distribute knowledge rather than recommendations based on the knowledge across individuals, groups, departments, or organizations in an effective manner to enhance creativity and innovation (Alavi & Leidner, 2001). Socialization facilitates the dissemination of tacit knowledge while formal communication facilitates the exchange of explicit knowledge. Knowledge distribution might become a power play in organization (King, Kruger, & Pretorius, 2007). Those who possess information or knowledge might choose to withhold some in order to increase their power in the organization. The organization culture is an important factor in smoothing the process of knowledge distribution.

Knowledge application
Knowledge distributed should be utilized else it becomes useless, if not bothersome. Personnel in organization should infuse knowledge received into their normal operations and decision processes so it becomes their tacit knowledge. The application of knowledge might come in the form of giving direction or routines in operation (Grant, 1996). Persons who have knowledge might direct the action of others without transferring the knowledge underlying the direction. Moreover, knowledge can be formed into procedures, rules, and norms that guide behaviors in the future. The attaining of competitive advantage is through competent knowledge application based on good judgment and decisions (Gronhaug & Ottesen, 2007). Competencies could be developed through knowledge application process (Lustri, Miura, & Takahashi, 2007).

A Case Study of Ramkhamhaeng University
Ramkhamhaeng University (RU) is an open-admission public university established in 1971 in Bangkok. Entrance examination is not required. Applicants who possess grade 12 or high school certificate can apply to the university with no restriction. Hence, a large number of students turn from other universities that admit limited number of students, to RU. The university has to facilitate the teaching of more than 600,000 students as of 2006 (Saengsook, 2006b) with 4,465 personnel (as of February, 9, 2006, Saengsook, 2006a). Two options were created: students can choose either to attend classes at the campuses or study by themselves. Students who can not attend classes can purchase texts and study by via television or radio broadcast but they have to take exams at the university with other students. Furthermore, RU started long distance video conference system teaching via satellite signal relay in 1995 to regional campuses and broadcasted to television in the following year (Ramkhamhaeng, 2007). In 2007, RU has 22 regional campuses, 36 regional examination centers and 47 regional academic services centers for special programs throughout Thailand. Moreover, RU offers programs of study in 28 foreign countries with 37 examination centers to facilitate undergraduate and
graduate programs for Thai people living abroad. In 2007, the university offers 194 programs of study in 9 faculties and one graduate school including students from over 50 countries in the Institute of International Studies. Apart from an e-University project, RU initiated a “Mobile University” project that have 2 sets of IT coaches and satellite trucks equipped with computer and satellite hook-up to bring computers and the internet to remote areas in nearly 70 provinces for education purpose. More than 60,000 learners have joined this project (Office of the President, 2008).

Activities in RU can be generally divided into the academic part and the administration part (Saengsook, 2007). This is equivalent to the division between line and staff functions in businesses (Kreitner, 2004). The academic operations are closely supervised by two governmental offices namely, The Commission of Higher Education (CHE) and The Office of National Education Standards and Quality Assessment (ONESQA). Education institutions in Thailand are regulated by many authorities but these two offices have direct jurisdiction over education in the country (National Education Act, 1999; and Royal Decree, 2000). Periodical reports must be submitted and regular visits from the offices are mandated. ONESQA requires that Key Performance Indicators (KPIs) be established to maintain academic quality. Hence, activities in the academic parts are usually well organized into explicit form in term of books, reports, and etc. for reporting purpose. The teaching and learning process are documented in details and shared. Teachers can pass their texts and teaching notes to others. The administrative activities are left to the university’s management with less scrutiny by the government. Knowledge in the administrative part is managed in less stringent manner and many of them are discussed and exchanged only among a handful of personnel. Only some of the knowledge is shared to others in the form of internal orders, memorandum, policies, etc. Hence, it is interesting to study the KM process in RU. Researches regarding the administration of KM process in RU are rare and have narrow focus. This project is the first research project that examines KM process in the bird-eye level of the entire university.

METHODOLOGY

This research was designed as an exploratory research to explore problems and obstructions in the practices of KM steps among personnel in RU using Delphi technique to obtain information. Informants were long time veterans in the university who had witnessed the development of RU throughout their tenures.

The researchers recruited personnel who were involved with the management of knowledge in RU from three levels: administrators, faculties, and staff, in order to gain information from different perspectives. Six informants in each group were selected based on their tenures, knowledge about the implementation of KM at RU, and their willingness to participate in the project. The administrator group included president, vice president, dean, and directors to provide information in the overall level. Information in the operational level was collected from the faculty, for the academic part, and the staff, for the administration part. The faculty group was composed of six instructors whose tenure were more than 10 years from major departments because they knew historical background and were exposed to various KM activities. The staff group was composed of six staffs whose tenures were more than 10 years from various departments.

The researchers collected information from documents and non-directive, in-depth interviews with the aforesaid experts regarding the knowledge management of both academic and non-academic activities in RU classified into four categories, i.e.,
knowledge acquisition and creation, knowledge storing, knowledge distribution, and knowledge application. The results were content analyzed based on their meanings and organized into a 5-point Likert scale instrument. Part one of the instrument elicited information regarding KM activities of the university classified into four categories. Part two included problems and obstructions of the activities. This questionnaire was commented by 5 specialists in KM field of study for the content and external validity. The revised questionnaire was submitted to 18 experts to complete. Median and Inter Quartile Range (IQR) were calculated for each question. These statistical results were included into the questionnaire and returned to the experts for the second round questionnaire administration. The experts were exposed to the statistical results and had opportunity to reconsider and change their answers.

RESULTS
Major KM activities performed in RU during 1971-2007 were summarized in order of appearance as follow:

Knowledge acquisition and creation
1. Many instructors were recruited so the teaching activities could be performed during the early period of operation. These instructors brought with them a lot of tacit knowledge to the university.
2. Teachings were performed to large numbers of students sectioned into many classes. Closed-circuit television was introduced to allow a small number of teachers to teach many classes at the same time. This paved the foundation of tele-teaching knowledge to RU.
3. The use of computer system for student registration process. RU recruited a lot of computer personnel to handle the tasks, hence adding technicians to the university.
4. Grading of multiple choice questions were done by computer. Suppliers of computer systems transferred knowledge to RU.
5. Consultants were hired to set up the administration and management system to handle a large number of students.
6. Trainings were organized for personnel who had to pose at regional centers so they could relay university’s information to applicants and students, and to solve administrative problems at the centers.
7. The university started programs to develop various skills for personnel such as English as well as career training and others.
8. A committee was established to develop work practices to handle work problems.
9. Research knowledge development program was established.
10. Bar code system was introduced to collect information about students’ records and profile.
11. Satellite broadcasting and fiber optic systems were established to create two-way communication system between students and the university.
12. On-line library network that could connect to other libraries was established.
13. The internet was utilized in tele-teaching and video conference. Hence, personnel needed to learn this knowledge from external consultants.
14. The information and technology center was established to provide academic and research services.
15. Collaborations with foreign universities were arranged to support and promote research projects among personnel.

16. CD-Rom and e-Book texts were purchased and uploaded onto RU's "Netlibrary."

17. Scholarships were commissioned for personnel to pursue their studies abroad.

Knowledge storing
1. Teachings were recorded in video tape to be broadcast in purchased time slot in public television.
2. Teachings were audio recorded so that students could borrow tapes for self-studying at home.
3. RU motivated instructors to publish texts for use in the university.
4. Regulations and policies regarding registration as well as semester schedules were documented.
5. Microfilms were introduced to record students' profile and other statistics.
6. An emphasis was given to speed and effectiveness of document storage.
7. Database and on-line system of RU were established.
8. Manuals for work practices in various departments were published.
9. Various departments started their periodicals.
10. Several investment projects in technology and teaching media were approved.
11. The computer center started to create the main database and collected information from all departments.
12. Research projects were published in RU's journals and documented in the library.

Knowledge distribution
1. Meetings were organized rather often because the university was newly opened with limited numbers of personnel. These personnel should be capable to replace others when necessary. Circulations and announcement boards were used to pose news and regulations.
2. Internal voice-cable broadcasting was implemented to announce information in the open space in the main campus.
3. Trainings were organized for personnel to unite practices at the main campus and provincial centers.
4. Publications were distributed both internally and externally in the form of academic articles, information, and news.
5. Academic and policy trainings and seminars were organized among departments.
6. Mass media were used to distribute knowledge to personnel.
7. Brochures containing university information and programs were produced and distributed.
8. More activities were performed through satellite system.
9. Database could be accessed on-line through the internet in the main campus and provincial centers.
10. RU collaborated with the Foreign Affairs Ministry to set up examination centers in various cities such as Washington, D.C., New York, Stockholm, Sydney, Tokyo, and etc.
11. Activities among personnel from different departments were organized to create trust and willingness to share knowledge among them.

**Knowledge application**

1. Personnel were allowed to participate in the design of work practices.
2. The use of computer enabled personnel to work more effectively.
3. Personnel who went to serve at provincial centers requested for information in their jobs.
4. Allied universities and education institutions in the provinces provided assistance and guided RU personnel’s activities in the provinces.
5. New technologies were utilized in RU activities.
6. Activities were broadcast to motivate personnel to use knowledge in their works.
7. Academic titles were rewarded to stimulate personnel to utilize knowledge.
8. Applied research projects regarding problems in works were promoted to improve the efficiency.
9. More budgets and resources were allocated to utilize knowledge among personnel.
10. Personnel possessed more knowledge and had higher education and they could utilize knowledge in their works.
11. Research grants and awards were budgeted to stimulate the application of knowledge.
12. Supports in many forms were provided for personnel to write articles and texts.

**Problems and obstructions**

The experts agreed that problems and obstructions in the implementation of KM process at RU were as follows:

1. Personnel lacked knowledge regarding the processes and practices in KM.
2. Many personnel, especially those with long tenures, resist to changes.
3. Personnel did not realize the significance of sharing knowledge but wanted to protect their territories from others.
4. Interpersonal relationship across departments was at low level.
5. KM was not immersed into the organization’s culture.
6. While IT infrastructure was sufficiently provided, some personnel did not have sufficient capability in using modern them while some did not utilize it despite their existing capability.

**DISCUSSION AND RECOMMENDATION**

During the first decade of the university (1971-1982), budgets and human resources were limited. The university started to establish the university-wide management and operation systems. The administrators spent much of their time solving operational problems. The most evident KM activity at the time was the acquisition of knowledge from outsiders. Much knowledge was obtained from the suppliers of equipment to the university and invited consultants and teachers. Personnel’s work focused in forming up work systems in their departments. There were little exchange of information and knowledge across functional areas. During the following decade (1983-1993), the operations were more settled and there were less operational problems. The
university started to expand and recruit more students. There was a need to manage the vast amount of information regarding registration and teaching process. Hence, RU started to purchase and utilize IT system to organize information. Knowledge from various departments and individuals was collected and input into the system. In this decade, RU emphasized more on the storing of knowledge. Much tacit knowledge was converted into explicit knowledge to be stored. Knowledge during this period was organized and codified. The following period (1994-2007) marked a huge advancement in KM at RU. The university was well established. The university could generate sufficient revenues to invest in computer infrastructure, for example, wi-fi system was installed throughout the main campus. Knowledge codified in the previous periods could be integrated. Policies based on explicit knowledge were made. The expansion, in number of students and locations, led to the need for better standardization of knowledge or to share explicit knowledge among personnel. KM activities in all areas had increased many folds.

The knowledge acquisition and storing activities were much in orders with rules and procedures governing these activities. Budgets were allocated to build knowledge for people in the forms of allowances for scholarships, research grants, conferences, meetings, workshops, and etc. with accompanying rules and procedures. Multiple means for storing knowledge were created. Information and knowledge could be retrieved from the extensive database network installed and internal communication system. The most evident problem, at the time of study, was regard to the application of knowledge. This problem was mostly centered on people.

Although much knowledge was openly distributed, many personnel do not incorporate it into their arsenals. Many personnel kept performing their work in the way they were used to. Many did not know or understand the reasons why they have to switch to report on-line or should participate in KM activities. Some thought KM was an extra burden hence they were unlikely to accept it. Many problems regarding KM implementation occurred at the individual level because the personnel resisted change. Considerations and plans should be made to initiate a change process in the institution.

Robbins and Coulter (2007) suggested seven actions to deal with resistance to change. These actions included providing education and communication, allowing for participation, facilitation and support, negotiation, manipulation, focusing on people who accept change, and lastly, coercion. Moreover, the change should be implemented gradually, starting from the smallest units and expand later. Change agent should be recruited to catalyze the change. Opinion leaders among personnel should be identified to focus the change attempts upon.

**Education and communication**

Many personnel did not understand KM and the reasons to use it. Attempts should be made, especially for opinion leaders, to create a better understanding about KM process. Personnel should learn the relevancy of KM to their jobs and career. Opinion leaders would help clarifying KM concepts and steps to implement it among colleagues. An understanding in the importance of KM to the individual and the organization would help decreasing the territorial problem. Once personnel accepted KM, they would learn the ways their jobs were related to others. Allowing others to assist in their jobs could not take the jobs, or positions, from them but to increase their productivity and to make the jobs flow more smoothly. Individuals would gain benefits from accepting KM.

**Allowing for participation**
Allowing for participation has two benefits, i.e. ideas generated and motivation. If incumbents are allowed to participate in the KM process, they would learn it more thoroughly. They have hand-on experience in their jobs so they could contribute relevant ideas and opinions for the process. Moreover, participation helps increasing commitment. Personnel who participate in the planning for implementation process, personnel would feel obligated and motivated to help pushing the project.

Facilitation and support

One of the problems was that while IT system and database were readily available but some personnel lacked skills to use them effectively. Supports and policies should be made to help personnel learn about IT system and especially on how to use them to facilitate their works. Personnel who lacked IT proficiency would find it difficult to use and hence would be unlikely to utilize it. Knowledge in the information system is important for KM. Apart from published documents, a large amount of knowledge were stored and distributed through IT system. Without proper knowledge and skills in using the IT and equipment, personnel cannot utilize knowledge stored in the database system for research or work practices to its full potentials and they would find it difficult to share information with others. Moreover, the database should be organized in a user-friendly format. Documents, texts, journals, and other printed media should be sufficiently available for reference.

Negotiation

Negotiations should be made with personnel and rewards should be provided to stimulate the acceptance of KM. Administrators should listen to personnel’s objections against KM and act accordingly. Reward is a good motivator to generate the acceptance of KM. Moreover, by offering rewards to certain behaviors, the university could communicate to personnel that these behaviors are preferred and valued. This would help establishing to culture in RU for KM.

Manipulation

RU should find some ways to manipulate the works so personnel would need to contribute knowledge learned from external sources to the organization as well as to use knowledge stored in the database in their works. Work structures should be designed in the way that requires personnel to retrieve and apply knowledge stored rather than making decisions based on personal experience and habit. Since all departments were mandated to participate in the Quality Assurance (QA) process, it can be used as a tool to acquire tacit knowledge from personnel and turn them into explicit knowledge. Moreover, non-work activities such as sport days or outings should be organized so that personnel from different departments would get to know each other. This would reduce the barriers among departments and help to develop cooperation among personnel.

Focusing on people who accept change

People had various traits and characteristics. Some were more readily to adopt new things rather than others. Roger (1983) classified people into innovators, early adopters, early majority, late majority, and laggards. Change agents and opinion leaders should help to identify innovators and early adopters. Attempts for KM should be first applied among personnel who are innovators and early adopters. They are willing to try new
things. Other people do not want to make the first move and change, attempts toward them would yield little result.

**Coercion**

Coercion is one of the methods to create change. However, in the context of a university, this should be avoided at all costs because it would create long-term negative consequences. Especially for KM, the emphasis should be on creating understanding rather than coercing people to follow without knowledge about it.

**CONCLUSION**

In conclusion, the major obstacle to KM implementation at RU was the resistance to change. Human resources department should be more proactive in leading the change process. This research focused on the KM implementation in the university-wide level. Future research should be performed at departmental level and results could be compared to identify factors that would assist the process among departments. Moreover, different methods to promote KM among personnel in different hierarchy might be needed. An investigation among personnel in each level might provide a good insight into the KM implementation of the university. A research project regarding KM process in other organization would also provide more insights into the utilization of KM concepts in Thailand.

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