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The Development of an Appropriate Knowledge Management Model for Public University Lecturers

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Abstract

In this research objective is to construct and develop an appropriate knowledge management model for public university lecturers. The model was developed on the basis of the Delphi method in which experts evaluated the model in three rounds. Experts also evaluated the model for appropriateness prior to experimentally testing the model with 30 Ramkhamhaeng University (RU) lecturers. Four categories of necessary knowledge engaging 25 types of knowledge were evaluated prior to the commencement and after the completion of the experiment. Satisfaction of the participants in the experiment was determined by means of the website. It was found that knowledge scores after the completion of the experiment were higher than prior to its commencement at the statistically significant level of .05 and that the level of satisfaction was evinced at a high level. This means that the knowledge management model was appropriate for creating knowledge.

Keywords: Conditions of knowledge management, problems of knowledge management, Knowledge management model, Necessary of knowledge, Satisfaction, Public university lecturers.

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Contents

1. Introduction

The challenge to human beings nowadays is the rapid change brought about by globalization and scientific and technological advance. What we have now is a transition from an information-based society to a knowledge-based society.

In respect to reforming the Thai educational system, these changes have led to a focus on holistic development with "humans as a center of development." The government focuses on Thais having quality life-long learning. The Ministry of Education (MoE) accordingly pays heed to student centeredness as an integral component of educational reform. Therefore, Thai educational institutions must develop modes of education and training as important instruments for developing the Thai people and nation. The role of teachers and lecturers then becomes one in which the task is to foster knowledge and life-long learning (Khammanee, 2012).

Furthermore, changes in ASEAN make it necessary for the MoE to use technology as a tool in reforming Thai education. The MoE's policy and planning framework for the development of information and communication technology (ICT) are integrated for the sake of facilitating efficient educational practices at present and in the future.

Universities must create learning systems whereby university lecturers take on the task of self-development. ICT capabilities must be honed and employed so as to enhance self-learning and to create a necessary knowledge management system for university lecturers (Ministry of Education Office of the Education Council, 2011).

In Thai society, public sector policy has seriously engaged knowledge management. From the vantage point of business, the private sector heeds the need to promote and encourage the continuous creation and development of knowledge. This brings about innovations in work and organizational development, which in turn prove advantageous in business competition.

At present, knowledge management focuses on building networks for the development of knowledge at vocational learning communities. Mobilizing this idea is the support lent to vocational learning. This allows educators to cooperate in work and share good practices, as well as integrating 21st century skills and thence applying them to classroom practice. This will lead to vocational learning communities in which teachers and lecturers participate. It also stimulates educators to support and share operational knowledge between communities using face-to-face communication and visual communication or both (DuFour and DuFour, 2013).

Therefore, the researcher, a university lecturer, is interested in developing an appropriate knowledge management model for public university lecturers in Bangkok Metropolis (BM). The context of education in BM is more or less the same in the use of ICT in facilitating education and learning. Lecturers can access knowledge and share knowledge speedily and conveniently. The appropriate knowledge management model in such a context will result in enhancing the capabilities of university lecturers in applying a necessary body of knowledge to instruction and study, research, and provision of services to communities and administrators, as well as for knowledge development. This, however, presupposes that university lecturers efficiently develop themselves academically and professionally in accordance with their mission.

2. Review of Literature

Knowledge management means a relationship between humans and information through processing, synthesizing, and classifying information. This leads to interpretation and understanding of initially received information until the refined product has become knowledge. This knowledge covers not only latent knowledge in the cognitive apparatuses of personnel, but also explicitly manifests intra-organizational knowledge as appears in documents, records, or reports. These two types of knowledge are systemized by means of creating new knowledge, knowledge sharing, and knowledge transfer for continuously developing organizations (Namprasertchai, 2015; Cruthaka, 2017).

This analysis of the knowledge management process on the basis of the results offered by both Thai and foreign academics allows the drawing of the following conclusions: An appropriate knowledge management process for public university lecturers consists of the following: (1) identification of a necessary body of knowledge; (2) knowledge acquisition; (3) knowledge creation; (4) knowledge storage and retrieval; (5) knowledge sharing; and (6) learning. Technological capabilities are used as an instrument for knowledge management whenever they are applied to the making of websites and blogs for creating, storing, and disseminating knowledge to the public. (Marquardt, 2011; Cruthaka and Pinngern, 2016; Abbass, 2017).

3. Research Objectives

The objectives of this study were: (1) the conditions of knowledge management problems and the necessary body of knowledge required for public university lecturers. The researcher describes and analyzes (2) a knowledge management model (KMM) constructed so as to be suitable for these lecturers. Finally, furthermore, the researchers evaluates (3) this KMM.

4. Research Methodology

The research was developed using a research and development (R&D) approach. This was done using the following steps:

In Step One, the researcher studied the opinions of 26 experts concerning the conditions of knowledge management problems and the necessary body of knowledge required for public university lecturers. Utilizing the method of structured interviews, the researcher collected germane data from the opinions of the experts concerning the components of the knowledge management process and the necessary body of knowledge required for public university lecturers.

These data were subsequently analyzed through content analysis and the frequency of occurrence was recorded. Finally, the results were summarized.

In Step Two, in an application of the Delphi method, the researcher examined the opinions of 20 experts vis-à-vis a KMM suitable for public university lecturers. Their opinions were solicited in three rounds. In Round One, an

open-ended questionnaire was used as an instrument of research. A five-rating scale questionnaire was used as an instrument of research for collecting data in Round Two and Round Three.

These data were subsequently analyzed by means of computing their median (*Mdn*) and the Interquartile Range (IRA) within which they fell.

In Step Three, the KMM constructed by the researcher was evaluated. The draft KMM was presented alongside four componential groups of knowledge constituting the necessary body of knowledge required for public university lecturers. These four groups were instruction and study; research; academic and vocational; and modern information communication technology (ICT). The KMM was designed on the basis of the Ramkhamhaeng University (RU) website.

The results were examined by seven experts in respect to whether it was appropriate to implement the KMM. The KMM was accordingly recommended for approval prior to its implementation with 30 RU lecturers. The instruments of research accompanying implementation were a questionnaire used to evaluate the body of knowledge required for public university lecturers and a questionnaire eliciting data revealing the levels of satisfaction evinced by the lecturers vis-à-vis their satisfaction with the KMM.

The quality of the instruments was verified and they were found to be reliable at the levels of 0.98 and 0.97, respectively. Utilizing techniques of descriptive statistics, the data collected were analyzed in terms of mean (*M*) and standard deviation (SD). In addition, the researcher employed a *t* test technique as a technique of inferential statistics.

5. Results

1. The conditions of knowledge management of public university lecturers based on the components of knowledge management in five aspects contained a total of 57 items. The items with the highest level of frequency for each aspect were as follows: (1) searching for knowledge through training, seminars, or academic meetings; (2) constructing knowledge through carrying out research or from dealing with problems stemming from issues involving funding sources and by means of writing research articles; (3) storing knowledge in a database or knowledge treasure trove in order to be able to access stored knowledge from faculty and university websites; (4) sharing and exchanging knowledge gained from training, meetings, and academic seminars whether held domestically or abroad; and (5) learning from the applications of knowledge to planning instruction and study, developing instructional techniques for each subject, and developing curriculums.

2. Concerning the problems of knowledge management of public university lecturers based on the components of knowledge management in five aspects of 54 items, the highest level of frequency for each aspect was as follows: (1) Lecturers have heavy teaching loads. Some lecturers spend time compiling textbooks and so they do not have time for information searching. (2) Developing new knowledge takes time. Textbook compiling and conducting research take time. However, heavy teaching loads and various activities hinder developing a new body of knowledge. (3) Knowledge storage is minimal. Knowledge is not categorized and filtered. Knowledge is not kept up-to-date. There are no public relations activities applied to accessing knowledge. Problems are also generated because knowledge is lost. (4) Lecturers do not pay much attention to the need to share and exchange knowledge. (5) Learning is instilled in individuals and used in instruction and study and research in specific fields. Knowledge is not widely used and lecturers do not find the time to bring their knowledge up-to-date.

3. The necessary body of knowledge for public university lecturers in Bangkok Metropolis (BM) comprises 30 items divided into four aspects. These are nine items in the aspect of instruction and study; nine items in the aspect of research; ten items in the academic and vocational aspect; and two items in the aspect of information and communication technology (ICT).

4. The KMM found suitable for public university lecturers consisted of five aspects: (1) knowledge acquisition; (2) knowledge creation; (3) knowledge storage and access; (4) knowledge sharing; and (5) learning.

Out of 88 items, 46 items were determined to be appropriate at the highest level. Forty-two items were found to be appropriate at a high level. The *Mdn* was found to range from 3.61-4.73. The IQR was established as lying between 0.04-1.00.

5. In evaluating the appropriateness of the components of the draft KMM as based on the opinions of experts, it was found that the KMM was deemed appropriate overall at the highest level. Moreover, also deemed appropriate at the highest level were the aspects of a body of knowledge; the knowledge management process; and the website. The opinions of the experts were overall at a high level in respect to the materials designed to accompany lectures on the KMM constructed by the researcher. This is shown in picture 1.

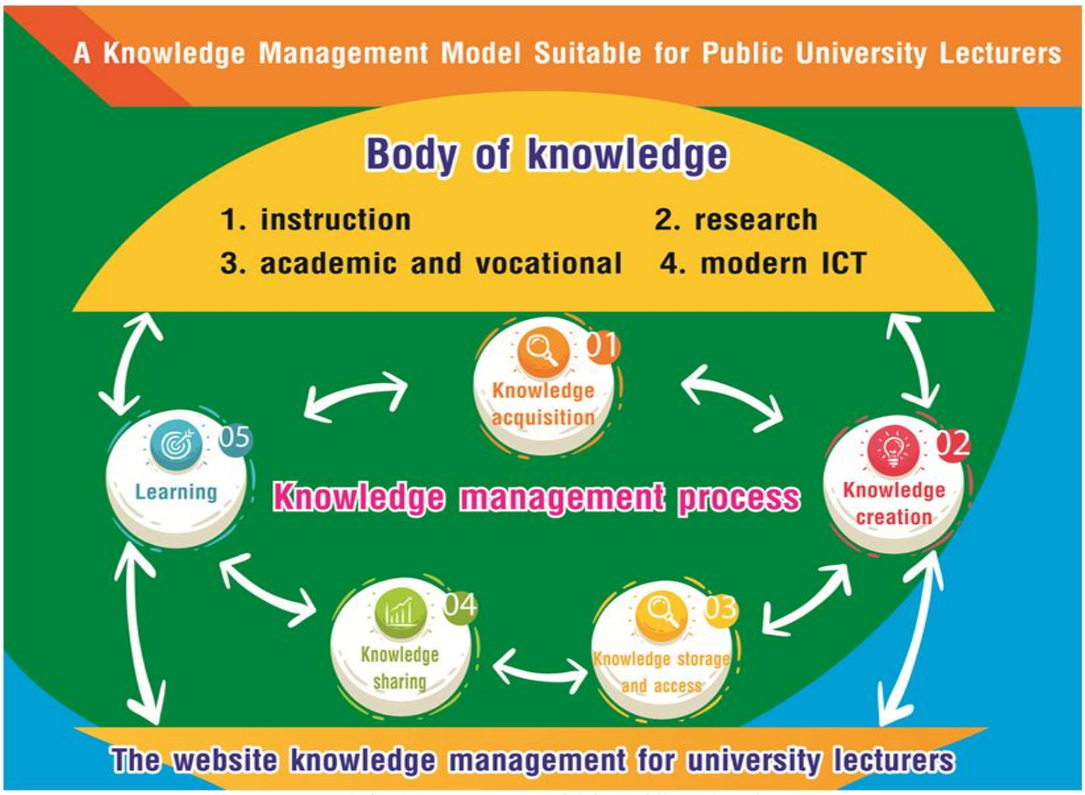

Figure-1. Knowledge Management Model for Public University Lecturers.
Source: Authors' field work.

6. The *M* scores for the body of knowledge required of university lecturers overall and in all the aspects of instruction and study, research, academic and vocational, and modern ICT showed the following: After the KMM was used, the *M* scores were higher than prior to the commencement of its use at the statistically significant level of .05. As shown in the Table 1.

Table-1. Comparison of body of knowledge of university lecturers before and after used to KMM.

Body of Knowledge	Before		After		t	p
	$\overline{X}$	SD	$\overline{X}$	SD		
1. Instruction and study	3.29	0.52	4.33	0.39	-9.698*	.000
2. Research	3.32	0.56	4.39	0.33	-9.355*	.000
3. Academic and vocational	3.46	0.56	4.38	0.44	-6.745*	.000
4. Modern ICT	3.37	0.54	4.36	0.52	-6.505*	.000
Total	3.35	0.44	4.37	0.35	-9.858*	.000

* $p < .05$.

7. The *M* scores for the levels of satisfaction evinced by the lecturers with the use of the KMM overall and in the aspects of the body of knowledge required, the website, and the website manual were found to be at a high level. The aspect of the knowledge management process was found to be at the highest level. As shown in the Table 2.

Table-2. Means and standard deviation and the level of satisfaction to the use of the KMM of university lecturers.

The KMM Dimension	$\overline{X}$	SD	Satisfaction level
1. Body of knowledge	4.39	0.46	high
2. Knowledge management process	4.50	0.46	highest
3. The website	4.43	0.41	high
4. The website manual	4.39	0.49	high
Total	**4.33**	**0.40**	**high**

Source: This table is result of my study.

6. Discussion

1. The results of studying the conditions of knowledge management expressed by public university lecturers are as follows: The opinions carrying the highest frequency for each aspect of the knowledge management process are specified accordingly.

Searching for knowledge in the course of training, seminars, or academic conferences, vocational conferences, and research conducted in the Kingdom of Thailand (Thailand) or abroad is a means of creating knowledge. Knowledge is also created through synthesizing knowledge on the basis of conducting research appertaining to one's own interests or from issues involving problems stemming from sources of funding and writing research articles. Moreover, knowledge is stored in the form of knowledge databases or knowledge troves so as to be accessible through knowledge databases on websites of faculty members and the university. Knowledge is shared and exchanged through training, meetings, and academic seminars at the national and international levels. Learning results from applying knowledge to planning and developing teaching methods, organizing instruction and study, and curriculum development.

The conditions of the work performance of lecturers at present involve using technology in various forms in teaching, conducting research, and providing academic services. Lecturers must develop themselves so as to manifest

well-rounded academic personae at all times. They must search for knowledge from various sources by retrieving knowledge from sources around the world. They must create an academic cooperation network in order to develop their profession. Academic activities are organized for knowledge exchange in conferences, academic seminars for the development of instruction and study, as well as for research purposes. This finding is in consonance with the research findings of Jarasri (2014) who found that knowledge acquisition by teachers at Ramkhamhaeng University Demonstration School (RUDS) was generated through various kinds of training. The teachers retrieved information from documents and engaged in Intranet and Internet searching at their organization. They stored knowledge in textbooks, documents, and manuals in the form of information files. This finding was also consistent with the research findings of Rerkaroonthong and Kulchartdilok (2014) who found that learning at institutions of higher education was brought about by assigning lecturers to use knowledge gathered through various channels. University lecturers, therefore, must strive to write articles and textbooks in order to create new knowledge obtained from research and teaching in order to improve academic content by keeping their knowledge up to date at all times.

2. In studying the knowledge management problems of public university lecturers, it was found that lecturers had large teaching loads. Some spend time compiling textbooks, developing instructional materials, and conducting research. So they have less time for searching for new knowledge. Creating new knowledge takes time and, as such, the body of new knowledge is insufficient. The storing of knowledge does not involve filtering. Public relations geared to accessing knowledge are largely absent. The knowledge management webpage presents difficulties to those who wish to log-in. The knowledge is not up to date. Knowledge is not categorized. The application of knowledge to specific fields is not widely done. This is because the lecturers have different levels of knowledge and capabilities. Knowledge acquisition and creation must depend on experience with a widespread network of university lecturers for speedy retrieval of knowledge or for participation in academic activities. This finding accords with the research of Maneetham (2004) who found that organizations did not systematically use writing and transference practices. All organizational members did not participate in the search for new knowledge. Only some groups participated. Knowledge was searched for from various sources when necessary but not in a systematic manner. Each member did his or her own searching without keeping written records. This finding also accords with the research of Chaitha (2012) who found that knowledge acquisition and creation as well as knowledge transfer by civil servants were problematic because they were overburdened with work.

3. In studying the necessary body of knowledge for public university lecturers, the researcher found that there were 30 items appertaining to a necessary body of knowledge. This knowledge can be categorized in terms of four aspects: instruction and study; research; academic and vocational; and ICT. The major mission of university lecturers is to provide instruction and study and to conduct research. These are requirements for professional development while fostering professional advancement. Lecturers must have capabilities in modern technology. Social networking has also played a role in instruction and study and information retrieval.

University lecturers must be flexible in searching for knowledge and making use of online learning. As seen above, technological capabilities can be used in the development of instruction and study through using web and online instruction. This finding is lent support by the research of Cruthaka and Pinngern (2016) who claimed that the technological capabilities of lecturers in instruction and study and curriculum development could transform instruction and study media and transfer knowledge through electronic media in the form of e-Books. Lecturers could thus provide instruction and study materials via websites and network systems by providing televised instruction and teaching on websites. This result squares with the research of Rerkaroonthong and Kulchartdilok (2014) who argue that higher education institutions should designate knowledge topics that reflect the mission and strategic issues of their universities as an important knowledge requirement for research.

4. In constructing an appropriate knowledge management model for public university lecturers, the researcher relied on the opinions of experts. The Delphi technique was employed for purposes of content analysis. The model was constructed such that a necessary body of knowledge could be used in constructing a database comprised of four categories of knowledge. The design accordingly requires users to log-in with a user name and password in order to gain access. A webpage, a webboard and an online forum have been developed and thence provided such that users can express opinions and exchange knowledge via this website. The researcher and her assistant monitored the system and filtered knowledge so as to determine whether postings were appropriate to the model.

The issues to be discussed consisted of whether the model developed by the researcher was an appropriate knowledge management model. The experts were of the same opinion in holding that in all aspects the model was acceptable at the highest level. These aspects were the search for knowledge through having conversations with colleagues who were deeply experienced in research and instruction; continuously creating knowledge through research; and creating innovations whereby knowledge could be stored by developing a manual for collecting knowledge while providing information concerning good practices. A question and answer (Q&A) database was constructed for the website. Academic talks were organized in order to share experience and to create a new body of knowledge that could be adapted and put to use in instruction and study and for developing instructional media.

It is necessary for university lecturers to develop themselves and their profession. They must pay heed to knowledge acquisition with the knowledge acquired taking on the form of deeply ingrained knowledge. They require coaching by mentors and senior lecturers. The research they carry out should solve problems in work performance and address organizational and community problems. Cooperation in the provision of academic services and professional services integrated with research is needed so as to create a new body of knowledge. Community practitioners following various vocations should be grouped together in order to solve problems so as to assist in maintaining continuous and sustainable development.

In addition, the university encourages the use of modern technology in knowledge retrieval, knowledge storage, knowledge accessibility, and knowledge transfer in various forms using the university website and social networking. This is in accordance with the ideas of Marquardt (2011) who asserted that the transfer of knowledge to individuals, groups of individuals, or the needy using ICT methods would make the dissemination and transfer of knowledge appropriate, speedy, convenient, and easy to retrieve. This conclusion is the same as the conclusion (Namprasertchai, 2015) who said that the application of ICT was to be used as a support tool, as, e.g., in providing Frequently Asked Questions (FAQs) sections to assist in responding to questions or solving problems the solutions

to which have already been stored. This is also in accordance with the ideas of The Office of the Public Sector Development Commission (2008) that learning will take place when learning takes place on the job and is grounded in learning systems in which knowledge is implemented in new experiences. It also accords with the research of Rerkaroonthong and Kulchartdilok (2014) who found that institutions of higher education open opportunities to lecturers and personnel to search and gather knowledge inside and outside of the university from the Internet. Moreover, Abbass (2017) found that the importance of knowledge management in institutions of higher education could be applied to communities of practitioners in solving everyday problems, transferring best practices, stimulating cooperation between experts, developing new knowledge, fostering speedy learning, working in one's field in depth with a large group of experts, and sharing knowledge and learning about matters of interest.

5. In comparing the differences between the body of knowledge commanded by university lecturers prior to the commencement and after the use of the model constructed by the researcher, findings were as follows:

The mean (*M*) scores on the body of knowledge commanded by the university lecturers overall and in all aspects—*viz*., instruction and study; research; academic and professional knowledge, and ICT—after the use of the model were higher than prior to its use at the statistically significant level of .05.

The model clearly delineated the knowledge management process. Lecturers could access knowledge easily and download knowledge to use in accordance with their needs, thereby fulfilling the mission of university lecturers to develop knowledge. This result is in consonance with the research of Jarasri (2014) as presented in a study entitled "An Online Knowledge Management Model for Teachers at Demonstration Schools Under the Jurisdiction of the Office of the Higher Education Commission."

The findings additionally showed that self-assessment concerning the body of knowledge commanded by the university lecturers after completion of the experiment was higher than prior to its commencement at the statistically significant level of .05.

6. Concerning the lecturers' satisfaction with the model, it was found that the *M* scores for satisfaction with the model were overall exhibited at a high level. When considered in each aspect, the aspect of the knowledge management process was found to be at the highest level. At a high level in descending order were the aspects of website, body of knowledge presented, and the website use manual.

The design of the knowledge management system via a website governing knowledge management procedures commenced with identifying a necessary body of knowledge and categorizing knowledge such that it would be accessible in addition to developing a webboard and a webblog so as to easily and conveniently create knowledge, store knowledge, and share knowledge. As seen above, a manual for website use was also constructed for knowledge management. This accords with the research investigation of Chaitha (2012) under the title "The Construction of Online Knowledge Management for Civil Servants as Support for the 9th Infantry Brigade." Moreover, findings showed that overall satisfaction with the model was at a high level.

7. Conclusion and Recommendations

The results suggest that the knowledge management model was appropriate for creating knowledge, enhancing academic advancement, and furthering vocational advancement. It can thus be used to create a learning organization in the future. The recommendations are that:

1. The model constructed by the researcher has the following components: knowledge identification, knowledge acquisition, knowledge creation, knowledge storage and accessibility, knowledge sharing, and learning. If other universities use this model, they may increase or reduce steps as they deem appropriate to the context of their organizations in order to ensure efficient knowledge management.

2. Universities using this model should study documents accompanying its use so as to ensure understanding. Meetings should be called to explain to university administrators and institutes how to support the use of the model. The use of this model should be connected with quality assurance (QA) as well.

3. The management of a knowledge system qua a body of knowledge is divided into four categories. These categories are instruction and study; research; academic and professional development; and ICT. All of these categories were obtained on the basis of an inquiry into what constituted a necessary body of knowledge. If a university has the need for more than four groups of knowledge—e.g., adding QA, or arts and culture maintenance—more groups of knowledge can be added. If there is a need for knowledge beyond this, other groups can be added as is appropriate.

4. There should be a follow-up system vis-à-vis the use of knowledge. Teamwork procedures should be set up geared to conducting follow-ups and to create motivation to strive for success in implementing knowledge in the work performance of lecturers, such as awarding certificates or monetary rewards.

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