Factors of Information Technology of Knowledge Management: A Case Study in Government-Funded Universities in Thailand

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Abstract: The objective of this research is to study and analyze the factors of Information Technology System of knowledge management, principles, concept and theory on the learning format of knowledge management websites in government-funded universities in Thailand in order to determine the factors of Information Technology System of knowledge management. From the analysis of the factors of Information Technology System of knowledge management, it is determined that essential factors of Information Technology System of knowledge management have 12 factors. Regarding the perspective of evaluation experts, it is concluded that the factors analyzed can be divided into preliminary and necessary factors of the Information Technology System of knowledge management for government-funded universities in Thailand.

Key words: Information technology, knowledge, management, Thai universities, Bankok, Thailand

INTRODUCTION

Web technology and knowledge sharing by using modern learning technology media is the main tool in learning activity and knowledge management that results in a knowledge base that results in inside and outside knowledge sharing. The result is that people share knowledge with one another. The fact that learners have met face to face with social interaction makes them trust one another more and exchange knowledge. Without face to face and social interaction, the lack of trust prevents people from exchanging the knowledge and working together.

From the problem and the restriction of the web-based learning management needs to find the solution by using the concept or the various methods to help present the content and the activity arrangement through the web in order to develop the learning format of web-based learning efficiently and can develop the learners to have the ability in finding knowledge and develop themselves.

LITERATURE REVIEW

Definition of technology for education: According to Namprasertkul (2003), knowledge management includes a sufficient amount of research that tries to explain the relationship and the role of information technology and knowledge management. There are many stories that show knowledge management of organization through information technology even though the knowledge management process is a process that does not use technology but the technology is anticipated to be an important tool that would help the knowledge management successful. Most of information would arrange for the budget in using appropriate technology as a tool in helping knowledge management of organization.

According to Peter (1984), the meaning of IT does not include only hardware and software but also includes the importance of people and the targets they have laid down or set up for using those technologies. This includes the value of choosing technology and the criteria in the evaluation used in decision making in the utilization of the various technologies.

Global education resources get linked and make resources global. With hypermedia technology, the expression of teaching content becomes more construal, dynamical and visualize. The teaching and studying is different from traditional one. The characteristics of modern education is based on digital, network, aptitude and media. With digital teaching tools, students can study independently (Kebao and Junxun, 2008).

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Define of learning on the website

The teaching formats though the web: The design and development of the learning though the web in order to be used in the learning. Apart from considering the learning process of the learners, the format of learning through the web that is appropriate for learners is different between students and website designer (Landsberger, 2000) has mentioned the component of the website and the basic characteristics especially the webpage format which is the characteristics of the webpage display from their study there would be 2 kinds which are:

* The scrolling website will be long page that require extensive scrolling. The webpage will be only one page information from top to bottom and can scroll from top to bottom or bottom to top by scroll bar on the left hand of the display
* The paging website will be providing shorter pages and using by click link. That is the webpage will be one short page but it only limit only the display of the computer only and cannot scroll to the bottom or the top

The connection in the course though the web: The connection to the content or the various webpage areas that must be considered in designing the lesson through the web, the content in each web is the data that the designer proposes to the learners.

The thing that the learner would learn is at the content but the design for the learner to learn in the specified content is important. Rakes (1996) has studied the access of the information in multimedia computer which is found that the webpage with the inside connection is an important format in the decision to find the data more than the webpage that connects to the outside (Erping, 1997) has studied the result of the Links, Nodes in finding the data of the learner. The ability in the study and the intention to go to hypermedia which will study 4 different conditions which are: Large common point and small connection, large common point and large connection, small common point and small connection and small common point with great connection.

The result of the common point in hypermedia and the amount of the connection between the common points has the effect to the data search, learning ability and usage intention.

The design has the effect to the knowledge: Researchers have known the characteristics, property and the ability of the learning through the website in the form of powerful media that has the power and increase the ability

to the learners in various aspects. We use it in the education by having the connection around the world like the internet.

The system design for the learning through advance website and has the characteristics that is different from old media which we must adapt the old theory and the various principles so that it is consistent with the tools and characteristics of the internet. The internet has the arrangement of the database and the access of the information in the complicated process and the connected into network. The theory and the principle in the learning process is the thing that must be considered so that it is consistent with the design in order to be used in the course which has the effect to the learning efficiency, solving problem and passing on the learning of the learner.

Definition of KM: Knowledge management has important factors as follows (Vijan, 2005):

* To create the knowledge vision
* To create the knowledge management team of the organization
* To start from existing intelligence or that can be found from the outside easily
* To create the knowledge exchange atmosphere in lower level employees
* Knowledge management along with product development activity or new work formats
* To emphasize on organizational management of using middle-up-down management
* To change the organizational structure to hypertext
* To create the knowledge network with the outside world
* To create horizontal culture and independent communication in every direction
* To create recording culture
* To evaluate the knowledge management result

According to Nonaka and Takeuchi (1995), KM theory consists of 7 important activities in the operation to manage the knowledge in an organization which are:

* Create the vision on learning
* Create knowledge management team
* Create the learning exchange atmosphere intensely in lower level employees
* Manage along with goods development product/new methods or develop the work format
* Emphasize on organizational management of middle-up-down management
* Change the organization to hypertext

- Create the knowledge network to the outside world. Socialization is the tacit knowledge exchange process through experience sharing from observation, imitation and/or practice

Knowledge is not easily measured or audited so organizations must manage knowledge effectively in order to take full advantage of the skills and experience inherent in their systems and structures as well as the tacit knowledge belonging to the employees of the firm (Nour-Mohammad Yaghoubi, 2011). Knowledge Management (KM) is a process that helps organizations identify, select, organize, disseminate and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner. This structuring of knowledge enables effective and efficient problem solving, dynamic learning, strategic planning and decision making. Knowledge management initiatives focus on identifying knowledge, explicating it in such a way that it can be shared in a formal manner and leveraging its value through reuse.

Objective of the study: In order to study and analyze information technology factors, researchers would study the concept and theory in the Information Technology System and Knowledge Management for applying information technology as a tool for knowledge management of government-funded universities in Thailand.

Outcomes of the study: Based on the study of the principles, concepts and related theory of tools for Information Technology System, researchers know of the factors of the tools of Information Technology System used for creating knowledge of Information Technology System for government funded universities in Thailand.

Conceptual framework (theory); knowledge management components: General knowledge management has 3 important components; people, information technology and knowledge management process. First in knowledge management, people are an important component because Personal Knowledge Management (PKM) refers to individuals who want to manage knowledge for their own use. Knowledge management teams in an organization can be divided into two sub-teams which are the core team or permanent team and the temporary team.

The organization must always realize the importance of people. Who involved in the knowledge management of an organization or the group uses the products and service of the organization. Should those people be

partners and join hands to plan for the organization? Rumizen (2002) states that apart from the two work teams, the people who have important roles in supporting the knowledge management project of the organization. The Chief Executive Officer normally would be in the advising position of the knowledge management project. Second, Information Technology (IT) (Namprasertkul, 2003), information technology has the role of managing knowledge including communication technology, collaboration technology and storage technology:

- Communication technology helps people to access knowledge more easily and more conveniently. People can contact experts in various fields by searching for information technology through the network via the internet, intranet or social media
- Technology that promotes working together can help people to work efficiently and reduce the obstacles of the distance such as program in groupware or video conference systems
- Technology that assists in storage and management of knowledge. Information technology can coordinate, support and provide convenience to the knowledge management in the three aspects of:

  - Finding knowledge refers to finding tacit knowledge, relationship skills between people, people with high experience who will see the trend or direction of the necessity to use the knowledge and find that knowledge by using information technology
  - The exchange of the knowledge pertains to the promulgation and distribution of the knowledge
  - In this regard, learning from experts would be helpful for the amateur of knowledge management
  - The utilization of knowledge includes the integration of knowledge within the organization and applies knowledge to new circumstances

Third, the knowledge management process is a process that assists in knowledge development and/or knowledge management inside an organization and includes seven processes:

- Knowledge identification is the idea that an organization has the bond, vision and targets. In order to achieve the target, people must use what knowledge they have and in what format it is in
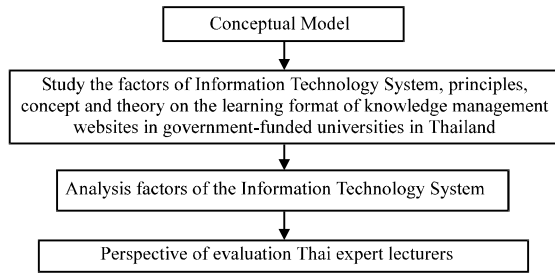
Fig. 1: Conceptual Model of research

- Knowledge creation and acquisition includes creating new knowledge and finding existing knowledge and maintain the old knowledge and getting rid of unused knowledge
- Knowledge organization pertains to implementing a knowledge structure to maintain the knowledge into the future
- Knowledge codification and refinement refers to changing documents into a standard form by using the same communicating language and adjust the knowledge content so that it is complete
- Knowledge dissemination and access refers to making knowledge more easily and conveniently distributed to others using an appropriate communicating channel
- Knowledge sharing and exchange is the exchange of knowledge by the various strategies such as in the case of explicit knowledge where documents, knowledge base and knowledge warehouse may be used or in the case of tacit knowledge where knowledge involves crossing work line, group activity, learning community and babysitting systems involving work change, borrowing people and knowledge exchange stage, etc.
- Learning and knowledge utilization is the last step of the knowledge management process where people create learning knowledge and use the knowledge based on organizational objectives and make learning a part of their work (Fig. 1 and 2)

Research methodology: The research methodology is a descriptive-survey approach in this study. It is descriptive because it describes and interprets whatever exists in order to determine and depict the characteristics of variables in a certain condition (Danaeifard *et al.*, 2009). Data collection is from website knowledge management of government-funded universities in Thailand in the year 2011 (N = 29). The data are collected by using website knowledge management of government-funded universities in Thailand that consisted of 29 universities (Table 1).
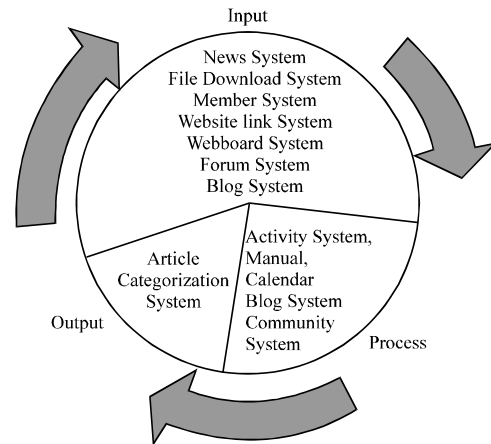

Fig. 2: Model of process of Information Technology System (input, process and output)

Table 1: Factors information technology of knowledge management websites of government-funded universities in Thailand in the year, 2011

Factors information technology of knowledge management websites (N = 12)	$\Sigma f = 123$
File Download System	18**
Activity System	17*
News System	17*
Website Link System that is related to the knowledge management	14
Article Categorization System	12
Blog System	11
Member System	9
Webboard System	6*
Forum System	6*
Manual	5
Community System	4*
Calendar	4*
(N = 12)	$\bar{X} = \dfrac{\sum fX}{N} = 10.25$

*Factors are equal rank; **Factor is the highest rank

Table 2: Factors of the information technology related the process of knowledge management system and process of management Information Technology System

Factors of information technology of knowledge management website	Process of Knowledge Management System	Process of Information Technology System
News System	Create	Input
File Download System		
Member System		
Website Link System that is related to the knowledge management		
Webboard System		
Forum System		
Blog System		
Activity System	Management	Process
Manual		
Calendar		
Blog System		
Community System		
Article Categorization System	Evaluate	Output

Questionnaire for Thai expert lecturers' perspectives (N = 18) are used to investigate from the Thai expert lecturers' perspectives by using mail posting for their convenience. For the questionnaires, researchers gather the Thai expert lecturers' perspectives to analyzing and synthesizing mean and standard deviation (5 points rating scales) (Table 2). After questionnaire confirmation was examined, the reliability coefficient was calculated by using SPSS software.

CONCLUSION

In this study, an analysis factors of information technology of knowledge management in education for government-funded universities in Thailand in the year, 2011. The essential factors of an information technology knowledge management have twelve factors: Based on the perspective of Thai expert lecturers in evaluation, it is concluded that the components analyzed can be applied as preliminary and necessary factors of the knowledge management. The factors are:

- File Download System
- Activity System
- News System
- Website Link System that is related to the knowledge management
- Article Categorization System
- Blog System
- Member System
- Webboard System
- Forum System
- Manual
- Community System
- Calendar

Second, the model for process of Information Technology System has 3 steps. Regarding the perspective of the Thai expert lecturers from the evaluation, it is concluded that the component analyzed can be applied as preliminary and necessary factors of the information technology system which is input, process and output.

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