

A Model of Teacher Development Using Knowledge Management to Enhance Teacher's Ability

Jitima Wannasri

Faculty of Education, Naresuan University, Thailand

Email: jitimaw@nu.ac.th

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Abstract

Teacher professional development is nowadays seen as key in efforts to improve students and educational quality. The objective of this research was to propose a model of teacher development using knowledge management to enhance teacher's ability. The research was conducted through the study of related documents. Content analyses were used to draft a model of teacher development. The propriety and the feasibility of a model were evaluated by nine experts. The results showed that the model consisted of three elements which were (1) a process of knowledge management (2) applying knowledge for teaching and (3) teacher's ability.

Keywords: Knowledge Management, Teacher Development

Introduction

Significance of The Research

In the 21st century, the students require more than content knowledge because they must live in a world with rapid change, complex life and work environment. The policies on teachers and educational personnel have focused on improvement of quality of teachers which directly affects the quality of students. The purposes of teacher development were (1) preparing teachers to meet international standards; (2) developing regularly the quality of teacher that impact on teaching and educational quality. Office of the Education Council (2010) reported that primary students could learn and practice analytical thinking. Therefore, primary teachers need help in teaching how to promote student's thinking skill which was one of the 21st century learning skills. These covers critical thinking, problem solving, creativity and imagination for living in the future.

It is acknowledged that knowledge is one of the resources to manage the organization. Knowledge management (KM) is a process that enables an organization to adapt and survive in discontinuous environmental change. KM is a process to capture the collective knowledge and intelligence in an organization in order to foster innovation through continued organization learning. KM is one of the instruments for human resource development. Its aim to find new viewpoints of learning, create knowledge, and develop competence.

The school administrators should support and facilitate teachers to share and learn knowledge from others which would bring a positive climate in schools and build a learning culture to be a learning organization. The studies by Lee, et al. (2010), Cheng and Lee (2016), Runhaar and Sanders (2016), Toala-Sanchez, Meza-Bolanos and Mejia-Madrid (2017), and Tuco (2018) supported this view that knowledge management can be adopted to improve organizational performance, externalization of knowledge, human interaction, and knowledge sharing culture.

Thus, the research question is how to develop a teacher's ability using Knowledge Management to support an instruction process and student quality. This research objective

was to propose a model of teacher development using Knowledge Management to enhance teacher's ability. The findings will be guidelines for administrators and teachers for applying this model to improve the quality of teachers and students and promote teachers to be personal masteries to be a learning organization of schools and learning society.

Knowledge Management (KM)

Knowledge management is the act of managing all processes regarding the creation, distribution and efficient use of knowledge in accordance with the purpose of an organization. Today, knowledge has become one of factors leading organizational inputs. The purpose of knowledge management is to make knowledge acquired useful for more than an individual, and organization. However, many organization do not consider knowledge management and there is no meaningful and organizational movement in this field especially in educational organization (Mazhar and Akhtar, 2018).

According to Ahmed and Shepherd (2010) and Frieman and Reilly (2016), knowledge is created in the interaction of explicit and tacit. There are two types of knowledge: (1) tacit knowledge and (2) explicit knowledge. The process of knowledge creation occurs through a spiral, moving from tacit knowledge to explicit knowledge and back to tacit. The spiral starts with socialization, externalization, combination, and internalization.

The knowledge management processes of educators' views were analyzed in table 1 as follows:

Table 1 Analyses of KM Process

Phanich (2005)	Phasookyued (2006)	Ahmed and Shepherd (2010)	Hislop, Bosua and Helms. (2016)	Analyses of KM Process
- knowledge vision	-	- find existing knowledge	- identify knowledge needs	- set goal
- knowledge sharing	- share	- acquire knowledge	- externalization	- share knowledge
-	- capture and learn	- create knowledge	- collecting knowledge	- capture knowledge
- knowledge asset	- store	- store Knowledge	- structuring it in a systematic	- store knowledge
-	apply/ utilize	- application knowledge	- internalization	- apply for teaching

Teaching and Learning

General approach for teaching, when we know what outcomes we want from learning, these outcomes bring to write a lesson plan, basic principles of teaching composed of objectives, contents, activities, and evaluation. Delahaye (2005) advocated a system approach to human resource development based on three steps of needs assessment, training and development, and evaluation. Lussier and Hendon (2013) proposed steps in the training process, after analyze the types of training to build new knowledge, skills and abilities for workforce. There are five steps: assessing needs, select a method to shape behavior, designing training, delivering, and assessing. According to Orlich, et al. (2013), Bates (2016), Baker, Ever and Brock (2017) and Khemmani (2017) the teaching process were analyzed in table 2 as follows: In the era of knowledge, knowledge management and human resource management are taken as the important and interrelated factors for success of person and organization. Knowledge management can be used as an alternative strategy to support teachers with the related skills to deal with challenges to improve performance in school. Therefore, the research question is

how to use and apply knowledge management for developing teachers in school in order to improve their capability. The findings will be guidelines to the administrators and teachers for applying this model in order to enhance the quality of teachers and students and become the learning schools.

Table 2 Analyses of Teaching Process

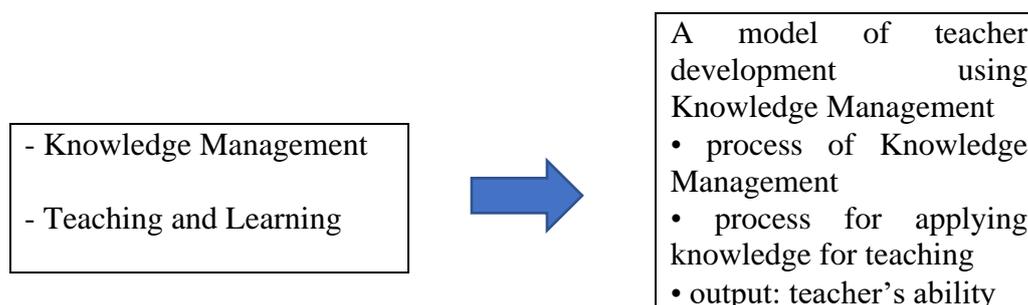
Orlich, et al. (2013)	Bates (2016)	Baker, Ever and Brock (2017)	Khemmani (2017)	Analyses of teaching process
- lesson design - content to be learned	- planning	- lesson plan	- content	- design and plan
- instructional techniques	- delivering	- teaching	- learning experiences	- implement
- assessment of learning	- assessing learning	- assessment	- evaluation	- assessment

Research Objective

The objective of this research was to propose a model of teacher development using knowledge management to enhance teacher's ability.

Research Conceptual Framework

Picture 1: The research conceptual framework



Research Methodology

This research was divided into three phases, however for this article the researcher going to present only two phases as follows:

Phase 1: Studying related documents and research. The researcher studied related documents and research which focused on the process of knowledge management, and the process of human resource development. The steps were as follows: (1) Studied and reviewed literature: studied literature and research reports about human resource development, knowledge management, and teacher professional training; (2) Analyzed and synthesized literature to create a model of teacher development. The instrument was a recorded table to collect the studied issues from related documents. Content analyses were used.; and (3) Formulated a model of teacher development: the data were analyzed from related documents and research, used for creating a model of teacher development by knowledge management.

Phase 2: Examining appropriateness and accuracy of a model. The researcher collected data from nine experts who were at least 10-year-experienced educational administrators and had experience on teacher training and knowledge management, they approved the model. The instrument were structure interview and questionnaire 5-rating-scale, asking questions in three main items based on components of teacher development model. The index of item-

objective congruence was found to be 1.00. Mean, standard deviation and content analysis were used for analyzing data.

Research Results

The finding was a model which had three elements. The researcher reviewed the related document, analyzed and constructed a proposed model. The experts approved and agreed with a proposed model that was appropriate at highest level and the experts gave their opinions to improve a model about name of process and detail of element 1 and element 2.

It showed two processes and output as seen in the picture below:

Element 1: Process of Knowledge Management

The first element is a process of KM which has four activities: set goal, knowledge sharing, extracting knowledge, and storing knowledge.

(1) **Setting Goal** Teachers participate in a process of knowledge management. They determine goals for conducting knowledge management what they would like to share and learn from others.

(2) **Sharing Knowledge** This is a key activities of knowledge management process. A teacher shares their tacit knowledge using story telling that was their good experiences. All teachers share and learns from others' good practices.

(3) **Capturing Knowledge** After the story telling, teachers analyze and extract what knowledge they gain from the teacher's stories. Therefore, tacit knowledge of teachers is converted to explicit knowledge. Knowledge capturing will bring success factors which are guidelines for improving a teaching method.

(4) **Storing Knowledge** Collecting and organizing the new knowledge into a systematic one. Explicit knowledge is created to be the database, documents, or files which everyone could access easily for learning and application.

Element 2: Applying Knowledge for Teaching

The second element is a process of implementing knowledge in a classroom. There are three stages: design and plan, implement, and assessment.

(1) **Design and Plan** Teachers select explicit knowledge that was stored in the database and transfer knowledge to design a lesson plan. A lesson plan consists of objectives, activities, and evaluation.

(2) **Implement** To develop the students' knowledge and skills, teaching is based on student-centered, and practice students' thinking skill through questioning. As Baker, Ever and Brock (2017) has explained that a way to develop critical thinking of students, teacher gives students opportunities to reflect their thinking or ideas, using questioning to encourage thinking skill while doing the activities.

(3) **Assessment** To examine student's thinking skill, using various kinds of instrument to reflect the output which give information for improving a teaching method.

Element 3: Output

Teacher's ability

The output of a proposed model is the teacher's ability: knowledge and skills to conduct knowledge management; the designing of lesson plans and teaching methods; and the provision of questions to encourage student's thinking skill.

Element 1: A Process of Knowledge Management



Element 2: Applying Knowledge for Teaching

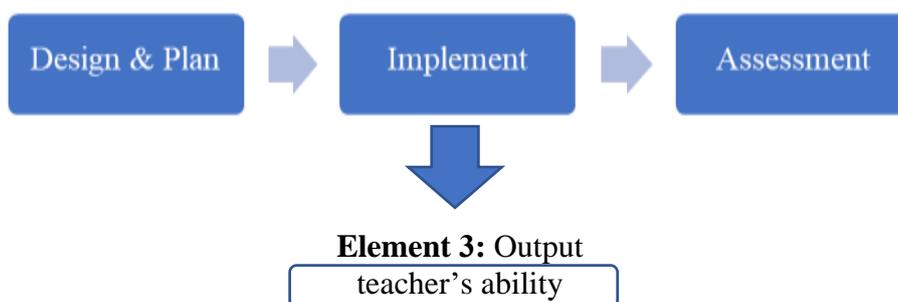


Figure 1 A Model of Teacher Development using Knowledge Management to Enhance Teacher's ability

Discussion and Conclusion

It can be concluded that the proposed model of teacher development using knowledge management composes of three elements: (1) process of knowledge management, (2) applying knowledge for teaching, and (3) the output. A model has two processes and output, according to general system theory, which consists of input, process, output. This model advocates a system of teacher professional growth and teachers' professional competence. The teachers get better performance to be effective teachers and become mastery persons which is one of five disciplines of learning organization. Because of Knowledge management is a contemporary approach for every organization which want to be successful in competitive era they should be based on this approach. These processes of the model encourage the teachers to share and learn through dialogue and practical experience and create a new knowledge in teaching.

The first element is a process of knowledge management in school. The components of knowledge management process are setting goal, sharing knowledge, capturing knowledge, and storing knowledge. This result is consistent with the finding of Memisoglu (2016) who investigated teachers' and administrators' perceptions of knowledge management competence, which measured knowledge management in four elements; capturing

knowledge, sharing knowledge, using knowledge, and storing knowledge. Teachers share and learn from others' tacit knowledge to improve their teaching ability which allow teachers to obtain new knowledge. The studies of Hislop, Bosua and Helms (2016), Kalan, et al. (2016), Toala-Sanchez, Meza-Bolanos and Mejia-Madrid (2017) supported this finding. That is identifying knowledge, gathering and organizing knowledge will facilitate the creation of new knowledge and innovation through reuse of teachers' ability to promote student achievement.

The second element is a process of teaching. It consists of three activities: design and plan, implement, and assessment that are congruent with Bates (2016), and Baker, Ever and Brock (2017). A process of application knowledge for teaching as we called learning by doing is a key process to support the teacher's skills. The process makes the internalization, in which explicit knowledge is converted back to tacit knowledge, transfers from document into understanding through practice or experimenting. Teachers are going to construct new tacit knowledge and skills. Therefore, this model is going to supports the teachers who learns how to teach and creates new knowledge on teaching and learning through sharing and learning with peers, that according to the research result of Mazhar and Akhtar (2018) shows that there is significant relationship between knowledge management and creativity of university teachers.

Recommendations

There are some suggestions for implementation and further study as follows:

- 1) The first element is a process of knowledge management, the school administrators should set up clear goals and infrastructures which support the process of knowledge management in the school, allocate essential resources for developing, such as time, materials, and money.
- 2) Teacher should be open mind and care to share and learn with others and generate a positive climate to be professional learning community. These lead to the creation of knowledge and learning organization.
- 3) Further study, the administrator should investigate how to design and construct the teachers' supporting system in school which enhance innovative teaching in the new normal.

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