

STUDY ON A MODEL FOR TEACHER PROFESSIONAL DEVELOPMENT IN VIETNAM BASED ON KNOWLEDGE MANAGEMENT

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ABSTRACT

The purposes of the study are to propose a new effective model for teacher professional development and examine the model's effectiveness in Vietnam condition. As the first step of the study, the paper proposed a teacher professional development model, which is based on knowledge management in blended learning environment and pointed out how to validate it. The model is designed based on four knowledge management processes namely knowledge co-creation, knowledge internalization, knowledge sharing and knowledge evaluation. The knowledge in the model is co-created by the participatory method of learning community members. The teacher professional development process is based on the constructive approach that including activities as follows: self-paced learning, knowledge sharing, observational learning, peer evaluation, reflection, group discussion, and feedback, etc. The learners will receive the on going supporting, mentoring and coaching processes among community members. As the result, a lifelong professional learning community and a secondary school teacher network are established and developed.

Keyword: Teacher professional development (TPD); blended learning (BL); knowledge management (KM); learning community; teacher network.

1. INTRODUCTION

Nowadays, to meet the requirements of the globalization process, many governments are engaging in seriously educational reforms. One of the key elements in the reforms is the TPD because teachers play a crucial role in improving the quality of educational system. A recent study of the common characteristics of the most successful school systems highlights the central role of teacher, asserted that "the quality of an educational system cannot exceed the quality of its teachers" (Barber and Mourshed, 2007).

TPD is defined as activities that develop skills, knowledge, expertise and other characteristics of an individual as a teacher (OECD, 2010). TPD is a long-term process that begins with initial preparation that teachers receive and continue until retirement (Villegas-Reimers, 2003). The TPD includes activities namely initial training, induction training, in-service training, and continuous professional development in school setting (OECD, 2010). In this study, however, we will focus on a TPD activity is the in-service training.

At the present, there are many TPD delivery forms that have been implemented in various countries with under different conditions. However, the most common TPD forms are face-to-face (F2F), online and blended learning. They have the following characteristics.

The F2F (in-classroom) form allows the trainees and the instructors easily interact with each other. However, it has limitations, for instance it is expensive to deliver the TPD course (Russell et al., 2009).

The online professional development form has many advantages. These include providing time and place flexibility for teachers, easier communication and interaction among teachers in different schools (Russell et al., 2009). However, this form has some disadvantages: For instance, it is difficult to gauge how the training is used and its impact on the participants' professional development (Serim, 1996). Feeling intimidated, confused, or frustrated if the technological knowledge necessary to function in an online environment is lacking (Kelly, 2009). Lacking the face-to-face interaction with teachers and peers in online learning (Arbaugh and Duray, 2002).

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The BL is an education approach that combines F2F methods with computer-mediated activities (Strauss et al., 2012). BL is a combination of the online delivery of educational content with the best features of classroom interaction and live instruction to personalize learning, allow thoughtful reflection, and differentiate instruction from student-to-student across a diverse group of learners (Watson et al., 2008). It is flexible and convenient for students in learning (Bonk et al., 2002). However, so far, there was seldom model that used for supporting TPD (Owston. et al., 2008).

KM has emerged as a new discipline that involves capturing, utilizing, sharing, presenting, distributing and creating knowledge (Ungaretti et al., 2011). Recently, there were many industrial and educational institutions, which have been integrated KM in the development of human resource programs (Ferguson et al., 2005). However, KM is still rarely applied in teacher education programs (Yeh, et al., 2011).

As Vietnam is preparing for a comprehensive reform of the education system from 2015, the TPD is considered as one of the most important factors to ensure the success of the reform. Therefore, developing an effective TPD model, which is suitable for Vietnam condition, is a priority work of the Ministry of Education and Training (MOET) of Vietnam (MOET, 2011).

The purposes of this paper, therefore, are to propose a new effective TPD model and pointed out how to validate it in Vietnam condition. TPD model is designed based on four KM processes namely knowledge co-creation; knowledge internalization; knowledge sharing and knowledge evaluation. The professional knowledge in the model is co-created by the bottom-up and participatory method of the community members. The teacher profession is developed based on the constructive approach. TPD becomes an on-going and long-term process. Throughout the model, a life-long learning community and a teacher network are established and developed.

The rest of the paper is organized as follows. Section 2 is background of TPD in Vietnam. Section 3 recalls the definitions of KM and the BL in TPD. The TPD model is presented in Section 4. Sections 5 and 6 present the hypothesis and method to verify the TPD model. Finally, conclusions and suggestions are given in Section 7.

2. TPD IN VIETNAM

2.1. General education information

In the 2010-11 academic year, there were 10,143 lower secondary schools, 2,288 upper secondary schools, 601 combined primary and lower secondary schools and 319 combined lower and higher secondary schools in the country. The total enrolment at the lower secondary level was about 5 million students (2.4 million were girls), and at the higher secondary level, it was 2.8 million students (1.5 million were girls). At the lower secondary level, the total number of teachers was 312,710 (211,035 was women). At the upper secondary level, the total number of teachers was 146,789 (87,345 was women) (MOET, 2012).

2.2. Teacher professional development

The TPD activities are administrative by the institutions under MOET (see Fig. 1). In the TPD administrative system, the MOET is responsible for providing policies and strategies for TPD. Whereas the units under MOET are responsible for administrating, implementing and funding TPD activities. More specifically, the Department of Teacher Management takes the role as organizers and administrators. The teacher-training courses are designed and implemented by the Department of Secondary Education and the Teacher Education Universities. The TPD activity funding is covered by the Educational Projects and other resources. The Educational Universities take the responsibility for providing the contents of teacher training courses. The secondary schools are responsible for supporting their teachers

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on daily activities by supervising, monitoring and evaluating.

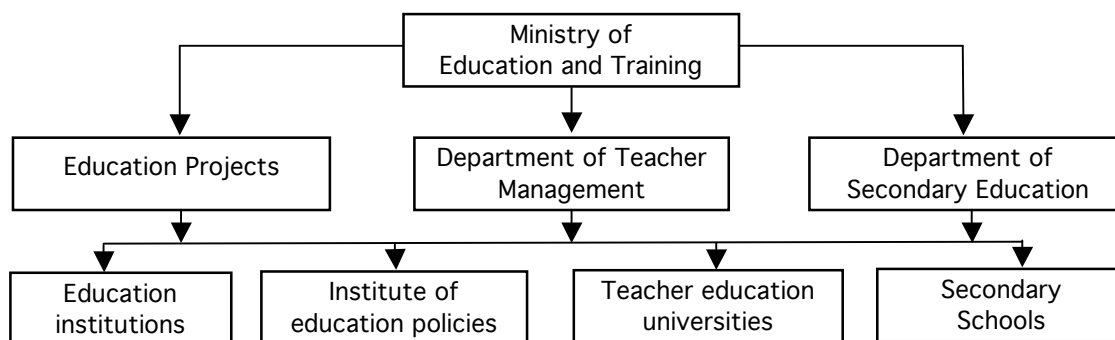


Figure 1. The TPD administrative system in Vietnam

2.3. In-service TPD policies

To facilitate teachers on professional development of SS teachers, the MOET issued the circular number 26/2012/TT-BGDĐT regarding to regulations of TPD activities for teachers in secondary schools. According to the circular, SS teachers have to participate in teacher training courses at least 120 hours per an academic year. The duration for the TPD activities is allocated as follows: 30 hours for contents which meet the needs of the secondary schools; 30 hours for contents which meet the local's demands of TPD; 60 hours for contents which meet the demands from the MOET.

The contents of TPD courses include three core matters: (i) the knowledge of subject matter, (ii) the knowledge of instruction, and (iii) the knowledge of students.

The TPD form is a combination of the self-learning and engaging TPD activities such as observing peers' classrooms; attending conferences and teacher training courses; discussing with peers, etc.

The delivery methods of teacher training courses are centralized approach (top-down and cascaded model) and face-to-face form.

The education institutions under the Department of Education and Training (DOET) of provinces and secondary schools are responsible for developing and implementing TPD's activities within their location. The SS teachers are responsibility for developing individual TPD and have to attend TPD courses. The result of TPD assessment be recognised in teacher's profiles and it is an important factor for the annual classification and promotion of SS teachers.

To facilitate for SS teachers in building their professional development plan, the MOET issued the circular number 30/2009/TT-BGDĐT regarding to regulation of the teaching competency standard for SS teachers. This standard listed what knowledge and skills that SS teachers have to achieve in their career.

2.4. Critical problems and needs of TPD in Vietnam

To examine the status quo and the needs of professional development of SS teachers, we have conducted a survey for staff of the MOET and DOETs, and SS teachers who participated in a nation-level teacher-training course in Ho Chi Minh City in August 2012.

With over given 200 questionnaires for SS teachers and 50 questionnaires for staff, we received 123 and 23 valid responses, respectively. The respondent's characteristics are presented in Table 1 and Table 2. The following is the survey result.

- The teachers' responses: 69% of respondents reported only one the TPD courses content applied for all learner levels (experienced teacher, novice teacher...); 28% of teachers responded that instructors of the teacher-training courses are not familiar with the curriculum of secondary education; 65% of participants responded that the duration

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of teacher training courses was shorter than expected; 46% of teachers responded that the courses' facilities was inadequate; 53% believed that they meet difficulties in rotating of participating in TPD courses. The following are other factors that could affected to teachers' participating in TPD: excessive number of learners in a classroom of TPD course; the difficult geographic conditions of Vietnam for participating in TPD courses; the lacking of time and the conflicts in teaching schedule when participating in TPD activities; the costs of transportation and accommodation for participating in TPD activities.

Table 1. The official's respondents (n=23)

		n	%
Gender	Male	22	95.7
	Female	1	4.3
Age	Under 30	0	0
	30-40	5	21.7
	41-50	14	60.9
	Over 50	4	17.4
Educational level	Bachelor	11	47.8
	Master	9	39.1
	Doctor	3	13.0
Position of respondents	General Directory	2	8.7
	Vice Directory	3	13.0
	Official	18	78.3
Teaching Experience	1-5 years	2	8.7
	6-10 years	7	30.4
	+10 years	14	60.9
Organizations	MOET	4	17.4
	DOET	19	82.6

Table 2. The teacher's respondents (n=123)

		n	%
Gender	Male	74	60.2
	Female	49	39.8
Age	Under 30	48	39.0
	30-40	54	43.9
	41-50	16	13.0
	Over 50	5	4.1
Educational level	Associate Degree	8	6.5
	Bachelor Degree	93	75.6
	Master Degree	22	17.9
Locate of the schools	Urban	41	33.3
	Flat	30	24.4
	Mountainous	27	22.0
Position of respondents	The most disadvantage	25	20.3
	Vice Principle	9	7.3
	Team Leader	25	20.3
Teaching Experience	Teacher	89	72.4
	1-5 years	35	28.5
	6-10 years	52	42.3
Secondary school level	+10 years	36	29.3
	Lower Secondary School	28	22.8
	Higher Secondary School	95	77.2

- The instructors' responses: 69% of the instructors mentioned that they have spent too much time on traveling to deliver the teacher training courses; 58% responded that the MOET and DOETs spent too much money on covering teacher training courses as F2F form (traveling and accommodation of learners and instructors).
- The needs of learners: 90% of respondents argued that it is necessary to have a long-term TPD plan for educational institutions. 91% expected to have more opportunities to participate in TPD activities than previous time. 99% of teachers expected to have more opportunities to share and exchange experience with their peers in TPD activities. 90% believed that it would be better if the MOET have an appropriate online reference resource and a distance learning system for TPD.
- The needs of administrative organizations: 97% of respondents argued that the delivery of teacher training programs should be more effective and flexible. 89% responded that the contents of TPD should be more relevant to the secondary schools teachers' needs; the interaction between learners and instructors and the quality of

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teacher training materials for TPD should be improved. 96% believed that the TPD funding should be available in the annually general budget of educational institutions.

3. KM AND BL IN PROFESSIONAL DEVELOPMENT

3.1. Definition of KM

KM has emerged as a new discipline that involves capturing, utilizing, sharing, presenting, distributing and creating knowledge (Ungaretti et al., 2011). Many definitions of KM have been proposed, however, three approaches become more popular. These are technology, organization, and ecology (Wikipedia, 2013).

The technological approach focuses on tools that can be used to enhance knowledge sharing and creation. According to Mahesh and Suresh (2004), KM can be seen as the strategic management of people and knowledge representations in an organization using specific technologies and processes to optimize knowledge sharing.

The organizational approach, how an organization can be designed to facilitate knowledge processes best. KM is regarded as the organized and systematic process of generating and disseminating information, as well as using explicit and tacit knowledge to achieve a competitive advantage in the marketplace (Hult, 2003).

The ecological approach, which focus on the interaction of people, identity, knowledge, and environmental factors as a complex adaptive system akin to a natural ecosystem. The successful keys of KM can be divided into five major categories: (1) leadership; (2) culture; (3) roles, and responsibilities; (4) information technology infrastructure; and (5) measurement (Hasanali, 2002).

In a training program, learning activity can be seen as the process gaining knowledge and skills of learners. Sammour *et al.*, (2008) proposed a learning process in the training program based on KM as follows (Fig. 2). In this process, knowledge creation and acquisition (finding existing knowledge), sharing, capture (select, choose and archive knowledge), application (apply knowledge to achieve goals) and evaluation (review for verifying knowledge is relevant and accurate).

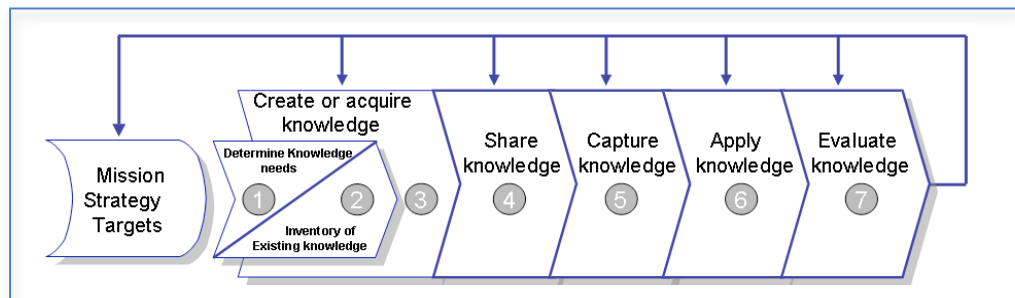


Figure 2. Knowledge management processes (Sammour et al.)

3.2. SECI spiral model

Nonaka and Takeuchi proposed the SECI model in 1995 (see Fig. 3). This model describes how the tacit and explicit knowledge is conversed. More specifically, the SECI model consists of four modes of knowledge conversion as follows (Nonaka et al., 2003).

- *Socialization* (from tacit to tacit): where knowledge transfer takes place in a tacit form. Here, an individual acquires tacit knowledge directly from others through shared experience, observation, imitation and so on.
- *Externalization* (from tacit to explicit): through articulation of tacit knowledge into explicit concepts. This field prompted by meaningful dialogues or reflections.

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- *Combination* (from explicit to explicit): through a systematization of concepts drawing on different bodies of explicit knowledge present in the environment of an organization.
- *Internalization* (from explicit to tacit): through a process of "learning by doing" and through a verbalization and documentation of experiences.

3.3. KM-based models for professional development

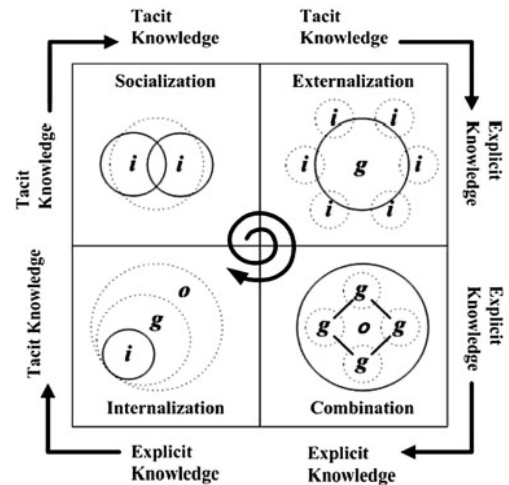
Recently, there were some industry and education institutions that integrated KM and BL to developing the human resources programs (Ferguson et al., 2005). Some KM based professional training models have been proposed, however, most of them are focused on knowledge sharing (Matzer et al., 2008; Gagné, 2009) and knowledge creation (Nonaka & Toyama, 2003). These could be briefly summarised as follows.

Knowledge creation model: According to Kinney (1998), knowledge creation is regarded as a process by which an organization creates, captures, acquires, and uses knowledge to support and improve the performance of the organization. Nonaka and his colleagues claimed that the knowledge creation starts from socialization, the process of converting new tacit knowledge through shared experiences in social interaction, and that tacit knowledge can be acquired through direct sharing of experiences, such as spending time together in the same environment. Explicit knowledge could be easily transformed and acquired through practicing and socialization (Nonaka & Takeuchi, 1995; Nonaka & Toyama, 2003). Swirski et al., (2008) argued that knowledge creation involves the analysis, application, and expansion of knowledge; it encourages individual learning and confidence, lifelong learning, and learning within communities.

Knowledge sharing model: According to Alavi et al., (2001), knowledge sharing has been seen as the key process of KM systems and the most important element of creative behaviours in organizations. The knowledge sharing process is concerned, is because it involves sharing relevant information, ideas, suggestions, and expertise with others (Bartol et al., 2002) and the process of converting knowledge and creating new knowledge (Van den Hooff et al., 2004). Ipe (2003) claimed that the nature of knowledge may influence the possibility of knowledge sharing and that the perceived value of knowledge influences people's motivation for sharing. Yeh et al., (2011) also argued that building a learning community, engaging in observational learning, and participating in both classroom and online group discussions contributed to knowledge sharing. There are many factors that influence knowledge sharing process. They include individual factors: trust, power, and leadership; organizational factors: social network, and sharing opportunities, and technological factors: information technology systems and member training (Riege, 2005). Park et al., (2004) declared that organizational culture that encourages teamwork and autonomy improves knowledge sharing.

3.4. Blended learning in education

There are many definitions of the BL, or hybrid or mixed mode learning (Graham, et al., 2005; Oliver et al., 2005). BL is a combination of F2F methods with computer-mediated



**Figure 3. SECI Model
(Nonaka, et al., 1995)**

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activities (Strauss et al., 2012; Graham, 2005; Graham et al., 2003). BL is a combination of the classroom instruction with E-learning, which can maximize the benefits of both F2F and online methods (Osguthorpe, 2003). According to Dziuban et al., (2004), the term of BL is used to describe a learning situation that combines several delivery methods with the goal of providing the most efficient and effective instruction experience by such combination (Harriman, 2004).

The following characteristics, that made the BL becoming more effectiveness are:(1) it shifts from teacher-centered to student-centered instruction. Students become active and interactive learners (Yeh, 2008); (2) It improves interactions of: student-instructor, student-student, student-content, and student-outside resources (Yeh 2008); (3) It helps to increase flexibility and convenience to learning is one of the key factors influencing the growth of distributed learning environments (Bonk et al., 2002); (4) It increases the cost and time effectiveness of learning (Dziuban et al., 2004).

In TPD, Curtis et al., (2003) argued that the BL provided an effective model for meeting the needs and learning styles of busy teaching professionals because it allows for a more flexible study schedule than a lectures-only course. Oliver et al., (2006) described and illustrated how a BL environment in an education course can be designed around authentic learning experiences to bring meaning and purpose to the learners' activities. The model not only helps teachers develop relevant skills through F2F sessions, but it also provides them with an opportunity to reflect on an online forum about their practice (Motteram, 2006). To date, however, the empirical research on the application of BL for TPD is limited (Owston et al., 2008).

4. KM-BASED TPD MODEL FOR VIETNAM

4.1. *KM-based TPD model for Vietnam (V-TPD model)*

The professional development process for teachers in the V-TPD model is based on the four KM processes: knowledge co-creation, knowledge internalization, knowledge sharing, and knowledge evaluation. The MOET's strategies, SS teacher's needs and local context of TPD are fundamental requirements of the processes (Fig. 4). The processes are on-going process that allows TPD to becomes a lifelong learning tool for teachers network.

- *Content creation (Knowledge Co-creation)*: This is the interactive and collaborative process between instructors, learners and materials. TPD knowledge is created by the following activities: discussing among instructors and learners; selecting the core knowledge from learning materials, which are the needs of SS teachers; choosing the feedback information from learners. Then the knowledge is verified and evaluated by experienced teachers and educational experts. It will be covered by the instruction's pedagogy and learner's psychology. These activities allow creating the useful knowledge for TPD because the knowledge is co-created by instructors and learners.
- *Learning (Knowledge Internalization)*: This is a gaining process professional knowledge, skills and expertise of the learners. On the first stage of this process, the self-paced learning is applied together with the TPD materials (such as articles, video-clip of situated teaching, and other resources). Then, the learners will join in the online forum to learn from their peers by discussing. They learn by observing and giving the feedbacks for peer's products in the F2F session. The learner can learn by doing reflective assignments from their experience. These activities allow the learners to develop their profession by the constructive learning approach.

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- *Discussion (Knowledge Sharing)*: The discussion is regarded as a way to share knowledge and teaching experiences in the professional learning community. The learners engage in discussing and exchanging their ideas with peers in both F2F and online forum session based on the directed topics or their assignments. The learners have to present their assignments and receive the feedbacks and advices or comments from peers or facilitators in the F2F session. By this way, the individual's knowledge will be converged gradually into the model knowledge. As a result, the professional knowledge in the V-TPD model becomes enrichment. This allows the model to develop sustainably because the model knowledge is created based on the bottom-up and participatory approach.

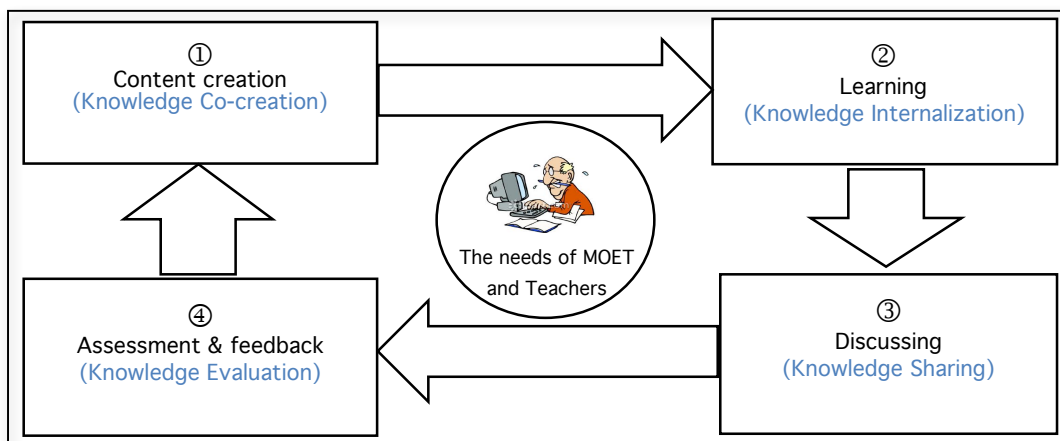


Figure 4. KM-based TPD Model

- *Assessment and feedback (Knowledge Evaluation)*: The purpose of this process is to review and verify whether what teachers have been learned is accurate and relevant. The learner's performance is evaluated based on the result of the pre/post-online test, reflection journals and assignments on the online forum and reflection question throughout the courses. These results enable learners to individually analyse their TPD competences and direct the learners of their progress within the TPD programmes. The result could be the useful information for organizers in developing TPD plans in the future.

4.2. Entities in the V-TPD model

In the V-TPD model, the TPD program is regarded as a central component, it is operated based on the involvement of entities namely organizers, instructors, learners and technical assistants. Their characteristics and relationships are presented in Figure 5.

The Organizers include the staff of the MOET, DOETs and SS teachers. They play a crucial role in supporting TPD activities such as providing policies and creating a learning environment, which encourage learners to participate in TPD activities and smoothly operate the model.

The Instructors are educational experts from educational institutes/universities or experienced teachers from secondary schools, who are selected and invited by the organizers. They take a role as the instructors, mentors and facilitators. They interact with the learners and materials to create knowledge for TPD courses. They participate in F2F session to facilitate learners' discussion and share their experiences. They also work with novice teachers as advisors and support them as mentors.

The Learners, who are the in-service teachers, are regarded as the central objects in the

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V-TPD model. They are responsible for actively engaging in the TPD programs, completing the teacher training courses' tasks and giving feedbacks about the courses.

The Technical Assistants include software and people, which have the role as supporters in the operation of the model. Through the technical environment, the participants are able to receive full supports from various sources such as supporting materials in the website, direct instructions from helpdesk 24/7 during the TPD course periods.

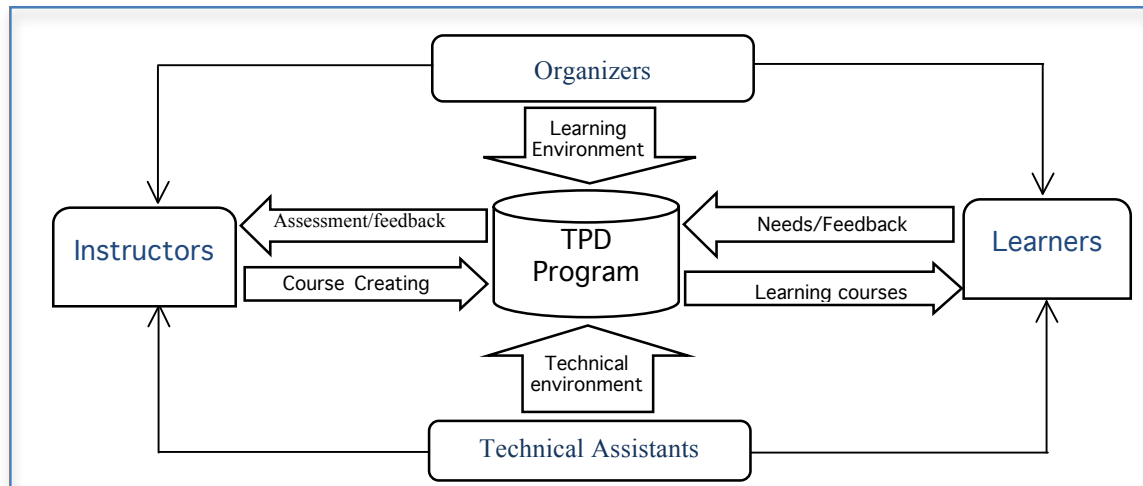


Figure 5. The entities of V-TPD Model

4.3. Teacher training program of the V-TPD model

The teacher-training program is a central component of the V-TPD model, which is designed based on KM process in BL environment for SS teachers in Vietnam context. BL environment, which is utilized for designing teacher-training courses, is a combination of a F2F session and an online forum component. The implementation of TPD program comprises six stages (see Fig. 6). It starts by formulating the vision, goals and missions of the TPD process. The next stage is a BL process, which is a combination of learners' self-paced learning and F2F session. In this process, learners will do group assignments with peers in both online forum and F2F session. The reflection and evaluation is an important stage because it can help the learners and organizers verify the performance of previous stages. The professional development of learners is continued by activities such as mentoring, discussing and supporting among members of learning community. These activities allow maintaining the TPD process as a continuous and long-term process. In order to operate the TPD model smoothly, the feedbacks are required for participants at all stages. The stages' characteristics are described specifically as follows.

- Stage 1: The MOET's strategies, teachers' needs and local context of TPD are obtained and analysed to define the programs' goals and course's expectations. These are fundamental factors on providing the policies that can support the implementation, management and operation process of the V-TPD model in reality.
- Stage 2: The knowledge of the TPD model is created by the interaction between instructors and learners; instructors and materials; learners and learners. The knowledge is evaluated by educational experts and experienced teachers. Then it is approved by the MOET. After that, the knowledge will be converted into materials for TPD courses such as learners' learning materials, instructors' materials, and supplementary materials. The learners' learning materials are available for learners on the TPD website.
- Stage 3: The learners receive the learning materials through the TPD website. The

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learning materials include learning guidance, video-clip of teaching examples or teaching situations, reference resources and the guideline how to participate in a TPD course. In this stage, learning experience is that the learner completes individually, at his own speed and in his own time, such as interactive, Internet-based or training materials (self-paced learning).

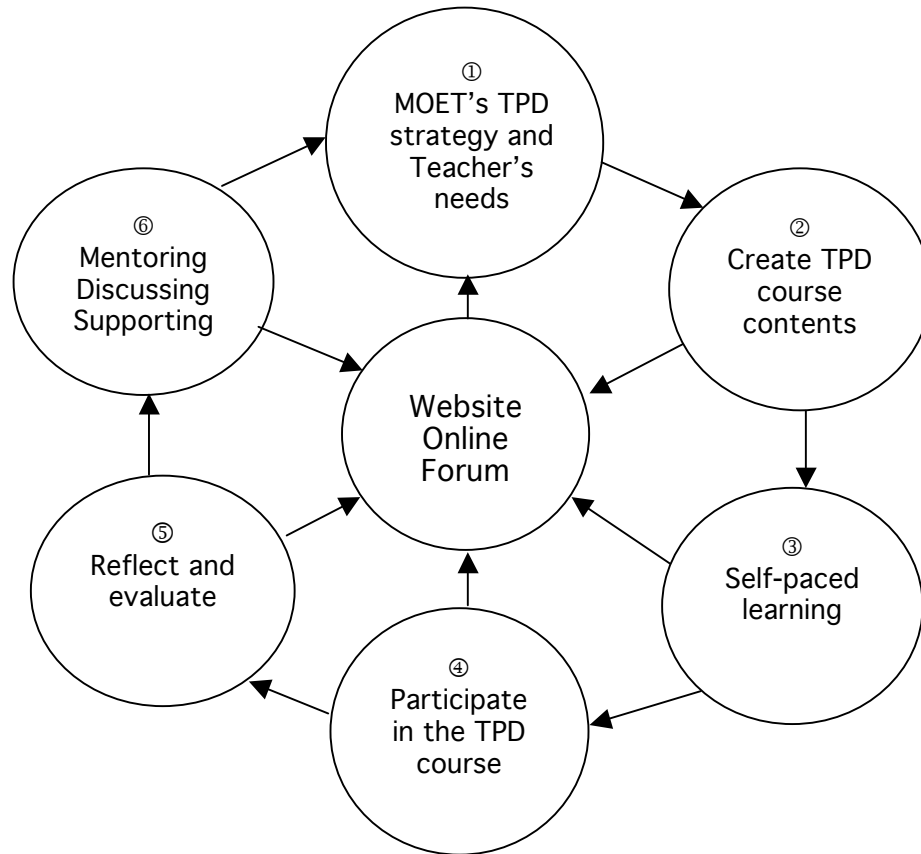


Figure 6. A teacher training program based on V-TPD model

- Stage 4: The learners have to engage in a F2F session of the teacher-training courses. In this session, it begins with a whole group introduction to the upcoming TPD topics and the course's works that the learners have to complete after the course. Instructors might ask learners to break up into small groups to discuss and work on hands-on activities. These groups should be parallel with the online discussion groups. The group members will discuss about their tasks and support each other to do these assignments. Then they will observe and evaluate peers' presentations in both their small group and whole group session under the leading of facilitators. Active learning methods are used in this stage. The purpose of this stage is to give learners opportunities to work hands-on, share their experiences and learn from peers' ideas.
- Stage 5: The learners will do their assignments and post their reflection journal of group discussion on the online forum. The learners have to take part in an online test at the beginning and the end of the course. The evaluation of learners' performance is based on the completion of their works in pervious stages and the online test result. The learners will receive a certificate of participation after the end of the course. A summarized evaluation of the course will be sent to educational administration organizations as a reference to develop further TPD programs.
- Stage 6: The TPD process will be continued by on-going interaction among community's members via the online forum. The learners could raise new questions,

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which are related to the TPD course, and receive the on-going supports from the community. These supports become lessons not only for questioners but also for all members. As a result, a learning community and a teacher network are established in which the teacher profession is developed continuously.

5. HYPOTHESIS OF THE STUDY

As mentioned above, the purpose of this study is to propose a KM-based TPD model in the BL environment. To examine the effectiveness of the model in Vietnam condition, four hypotheses are proposed:

- The KM-based model would improve ICT teaching knowledge for secondary school teachers;
- The KM-based model would improve ICT teaching skills for secondary school teachers;
- The KM-based model would improve the satisfaction of participants including instructors and learners;
- The KM-based model would benefit for MOET and DOET and SS schools.

6. METHOD

In order to validate the hypothesis, a teacher-training program will be implemented in Vietnam. The program characteristics are described as follows.

6.1. Experimental procedures

A 20-week experimental TPD program for SS teacher across provinces in Vietnam is employed. The course contents are using ICT for reforming educational instruction in Vietnam.

6.2. Participants

The number of SS teacher who participate in the experimental program will be 50. The participants will be enrolled following their volunteer.

6.3. Instrument

The instruments employed in the study are the MOET's website, online forum, and email system. To determine the V-TPD model could whether improve Teaching Knowledge of ICT (TK-ICT) and Teaching Skills of ICT (TS-ICT) or not, this study employed the pre-test and post-test instrument. The pre-tests will be given in the 3rd week, and the post-test will be completed in the 20th week. The pre-test which includes both the TK-ICT and the TS-ICT will be developed by the researchers and designed as a 6-point Likert scale with response options ranging from "totally disagree" to "totally agree". The TK-ICT comprises two factors: "Subject matter knowledge" (10 items) and "pedagogical content knowledge" (10 items). The TS-ICT was composed by two factors: "knowledge and skill of ICT" (10 items). The post-test includes the product of a lesson plan (which will be presented by learners) and the reflection questionnaire.

In order to evaluate the satisfaction of learners and instructors, a questionnaire with a 5-point Likert scale, which is adapted from the questionnaire of a student survey of Arbaugh (2000), is given as follows.

1. I am satisfied with the education program
2. The program will be helpful in performing teaching duties
3. Information that I want to know was fully provided
4. I gained more interest in the subject matter of this course
5. The learning content is easily understandable
6. The quality of the course compared favourably to my other courses

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7. I was continuously interested throughout the study
8. I feel that this course served my needs well
9. I would recommend this course to another learners
10. How do you rate this program (0-100 point)?

To examine the mechanisms that contribute to model's effectiveness, ten open questions were used as a reflection questionnaire in the end of TPD program as follows.

1. This course employed BL (integration of online forum and classroom instruction). Was such a design enhancing knowledge of ICT used for instruction? And how?
2. Did the assignments of sharing and commenting on products online contribute to your understanding and appreciation of how to use effectively ICT in classroom? How?
3. How do you feel about the discussions and feedback from online discussion topics?
4. Did the BL design contribute to your improvements of ICT? How?
5. Did the BL design help you reflect on your abilities and competency of applying ICT in classroom?
6. How do you feel about the learning process (e.g. materials, organizing) in the model? Why?
7. How do you feel about the flexible access in the new model? Why?
8. How do you feel about the time for you to participate in TPD course in the new model? Why?
9. How do you feel about the cost for you to participate in TPD course in the new model? Why?
10. How do you feel about the convenience for you to participate in TPD course in the new model? Why?

6.4. Experimental procedures

This study employed a before-and-after design. An experimental instruction program based on the V-TPD model is employed and managed by a researcher. The Pre-tests are given in the 3rd week and the post-tests will be completed in the 20th week. The pre-tests only included the TK-ICT and the TS-ICT, whereas the post-tests included a product result and reflection questionnaire. In the experiment instruction program, we used six stages of the V-TPD program. The duration of stages is as follows: stage 1: 2 weeks; stage 2: 4 weeks; stage 3: 6 weeks; stage 4: 2-4 days; stage 5: 2 weeks; stage 6: 5 weeks.

7. CONCLUSIONS AND SUGGESTIONS

KM and BL have emerged as new topics, and have been received an increased consideration of the scholars of many disciplines. Nevertheless, both KM and BL still rarely applied in teacher training programs (Ronald, et al., 2008; Yeh et al., 2011). Therefore, this paper has proposed a new effective TPD model based on KM in BL environment and pointed out how to examine the effectiveness of this model in an in-service teacher program in Vietnam condition. In the V-TPD model, the learner's profession is developed by participating in activities of the teacher-training programs. The program is designed based on the following KM processes: knowledge co-creation; knowledge internalization; knowledge sharing and knowledge evaluation. The professional knowledge in the model is co-created by the bottom-up and participatory method from the learning community members. The learner's knowledge gaining process is based on the constructive approach, which include the following activities: self-paced learning, knowledge sharing, observational learning, peer evaluation, reflection, group discussion, and feedback, etc. The TPD in the model becomes a long-term process, which is maintained by the on-going supporting, mentoring and advising processes. As a result, a life-long learning community and a teacher network were established and developed. That

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could be seen as an effective way to develop profession for teachers in Vietnam condition.

The application of BL and KM theory in TPD requires more empirical practices, so future studies should be examined more on the effectiveness of the V-TPD model in different conditions. Moreover, this study just focuses on TPD model for in-service teachers in ICT subject; therefore, future studies should add follow-up studies to investigate the influence of the model with pre-service teachers and its impact on student performances in various subjects.

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