

Chapter 5

Conclusions, Discussion and Suggestions

1. Conclusions

The research entitled A Model of Learning Management Skills Development to Enhance Critical Thinking for Thai Language Lecturers in Rajamangala University of Technology Lanna has two objectives, which are (1) to develop a development model of learning management skills that enhances critical thinking for the Thai language lecturers and (2) to study the result of using the constructed development model. The research is divided into three phases. Phase 1 is to study the instructional condition in the course of Thai Language 1, the opinions, and the needs to enhance critical thinking. Phase 2 is to develop the development model for developing the learning management skills that enhances critical thinking. And Phase 3 is to study the results of using such development model.

The study population and the samples are chosen in the step to study the learning management to enhance critical thinking in the course of Thai Language 1. This sample groups are 22 Thai language lecturers and the freshman students in the university who take the course of the Thai Language 1, the semester 2/2009. In identifying the samples, a quota system is used with a simple random sampling from 6 campuses. One classroom is taken randomly from each campus. The numbers of students from all classrooms from all 6 campuses are 180 students. The next step is to develop a model for developing the thinking skill to be tried on two Thai language lecturers who are willing to participate in the trial use of the model and some 24 students (from two classrooms) who are the sample group of the University of Rajamangala of Technology Lanna who take the course of Thai Language 1 in the semester 3 of 2009. The last step is the analysis on the results of using the development model with 7 Thai language lecturers from 3 campuses of University of Rajamangala of Technology Lanna. These samples include the freshmen bachelor students in the semester 1 of 2010, whose teachers are the Thai language lecturers participating in the research project, who are taken as the samples with a purposive sampling method from seven classrooms. Total number of samples are 192 persons.

The tools used in this research are composed of two parts, which are (1) tools used in the research's experimental methods, i.e., the self-directed learning manual, workshop meeting plan and (2) the tools for data gathering, i.e., the test on general knowledge of learning management that enhances critical thinking, evaluation form on self-assessment manual, evaluation form on workshop meeting, evaluation form on learning management plan that enhances critical thinking, observation form on learning management, record form on learning management situation/event, record form on reflection after the learning management, measurement form on critical thinking, questionnaire form on attitude toward the learning management, and record form on group meeting.

The conclusion of the findings can be reported as what follows.

1. The result of developing the development model of learning management skills that enhances critical thinking

This research reveals the results of studying the learning management condition in the course of Thai language 1, opinions toward critical thinking, need and suggestions from the Thai language lecturers and students who took the course of Thai Language 1. The researcher analyses the result of the study by using the study on the principles, concepts, theories and researches related to the development of learning management skill, training, collaborative learning, reflective learning, and promotion of critical thinking. It results in the development model of learning management skills that enhances critical thinking for the Thai language lecturers of Rajamangala University of Technology Lanna, which is composed of three implementation steps as the followings.



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Development Model of Learning Management Skills that Enhance Critical Thinking

Step of training	Step of monitoring and evaluation in classroom	Step of summary and evaluation
Objectives 1. To implant among the Thai language lecturers on general knowledge and understanding of learning management that enhances critical thinking. 2. To prepare the Thai language Lecturers to set the learning management plans that enhance critical thinking in the course of Thai Language 1.	Objectives 1. To monitor the result of implementation of the constructed learning management plan that enhances critical thinking to be used with students. 2. To open the opportunity for the Thai language lecturers to exchange opinion toward the learning management through reflective learning in the classroom.	Objectives 1. To summarise and evaluate after the learning management that enhances critical thinking in the course of Thai Language 1 in classroom as the whole picture and toward the development model, opinions and suggestions.
Development activity 1. Self-directed training through studying the self-study manual for 2 weeks. 2. Attending the workshop meeting to listen to the lectures from the knowledgeable trainers, participate in the discussion and creates the learning management plans that enhances critical thinking in the course of Thai Language 1	Development activity 1. Planning the Thai language lecturers make plan together in order to prepare the readiness before implementing the learning management plans in classroom 2. Implementation and observation. To implement the learning management plan that enhances critical thinking and observe the learning management situation of the lecturers 3. Reflection. The reflection after the implementation of the learning management in order to lead to the planning for the next session	Development activity 1. Summary and evaluation The Thai language Lecturers attend the group meeting to find the summary and evaluation after the implementation of learning management plans that enhance critical thinking in the course of Thai Language 1 and the opinion toward the development model

**Development Model of Learning Management Skills that Enhance
Critical Thinking (Continued)**

Step of training	Step of monitoring and evaluation in classroom	Step of summary and evaluation
Evaluation 1. Evaluate the general knowledge on teaching management that enhances critical thinking with the test on general knowledge of the learning management that enhances critical thinking. 2. Evaluation of the efficiency of learning management plans that enhance critical thinking in the course of Thai Language 1 through the evaluation form on the learning management plan, evaluated by the experts that enhances of critical thinking	Evaluation 1. Evaluate the critical thinking skill of the students before and after the learning through the measurement of critical thinking. 2. Evaluate the attitude toward the learning management that enhances critical thinking of students through the questionnaire on the attitude toward the learning management.	Evaluation 1. The evaluation in the step of summary and evaluation. The evaluation will be done through the opinion of the lecturers who participate in the research project that affects the learning management that enhances critical thinking and toward the development model, including suggestions.

2. The results of using the development model of learning management skill that enhances critical thinking for the Thai language lecturers at Rajamangala University of Technology Lanna

2. 1 The result of test on general knowledge of the learning management that enhances critical thinking after the lecturers participating in the research project in the study the self-directed learning manual shows that their pre-test scores increase from the average score of 18 to 25 at the post –test (statistical significance at $P < .05$). The result of evaluation of the self-directed learning manual reveals that all items in the list stand at high level, i.e., the format and publication ($\bar{X} = 3.95$), the content of the manual ($\bar{X} = 3.94$) and the gained benefits ($\bar{X} = 4.43$).

2.2 The results of evaluation of the workshop meeting among the lecturers show that all listed items stand at high level, especially on the knowledge gained from the meeting ($\bar{X} = 4.57$), on the meeting arrangement ($\bar{X} = 3.97$), and on the learning management plan that enhances critical thinking (through the evaluation of three experts). Then the research sets the result of scores to be compared with the set criteria. One expert evaluates that it has a “good” quality (75.20 percent) while the other two experts evaluate that it has a “very good” quality (83.20 percent and 88.80 percent).

2.3 The implementation of the learning management implementation that enhances critical thinking of the participating lecturers reveals that the students from seven undergraduate classes have higher average post-test scores of critical thinking than the pre-test scores a statistical significance at $P < .01$. Before the learning the students reach the average score of 21.57 and after the learning they score averagely 27.34.

2.4 The attitude/opinion toward the learning management that enhances critical thinking. The students show opinion toward the learning management in a high level up in all listed items. As the whole picture of the opinion, the average score stands in a high level ($\bar{X} = 4.19$), for example on the lecturers ($\bar{X} = 4.31$), on the contents ($\bar{X} = 4.16$), on the learning management activity ($\bar{X} = 4.18$), on media for learning management ($\bar{X} = 4.09$), on measurement and evaluation ($\bar{X} = 4.12$), and on the opinion toward the whole picture of learning management ($\bar{X} = 4.21$).

2.5 The opinion of the lecturers who participate in the research project toward the development model of learning management skill that enhances critical thinking is shown below. The summary and evaluation show that the lecturers who participate in the research project show opinion that the model is appropriate and they get benefits from participating in this development. These lecturers have knowledge and understanding the learning management that enhances critical thinking through the training process that leads to the implementation in the classroom and the collaborative learning among the Thai language lecturers. They participate in the shared planning, implementing the plan, summarizing, evaluating, and reflecting the implementation. That is the reason for their ability to develop the learning management skill that enhances critical thinking efficiently.

2. Discussion

Discussion on research summary as the results is as the followings.

1. The results of constructing the development model on learning management skills that enhances critical thinking for the Thai language lecturers. The development process consists of three steps as what follows.

1.1 Step 1 or Step on Training. The first step this research utilises the technique of self-directed training for the lecturers/samples, which is considered the preparation before attending the workshop meeting. This is a part of training technique that can be used well among the lecturers who are able to learn by themselves. This technique changes the conventional training method in the past and it also produces results in continuous learning or life-long learning. In addition, this training method is not only convenient for the group of lecturers who participate in the research project, because all of them have lots of work burdens every day, but also facilitates the lecturers in a way that is consistent with the concept of Methinat Rattanakul (2009). He states that this method offers flexible time to study by the lecturers at any time of their convenience whenever they are free from daily tasks. Besides, this method is also consistent with the concept of the informal adult education, andragogy and self-direction of Knowles (1980) and Lindeman (Lindeman, 1962 cited in Boonlert Pailin, 1995: 2) who propose that the adult personnel need to have self-directed learning more than being directed by others.

The next step is attending the workshop, which is considered the training technique that is used for developing personnel in the organization. The target group of this research is the Thai language lecturers who already have knowledge and experience in instruction. The development of the process considers the differences of individuals and influences toward the adults learning, education, experience gained from direct experience. The process, however, should not spend too much time, which is consistent with the adult learning psychology of Suwat Wattanawong (1995: 25-26) who argues that the adult learning should be in form of persuasive or guiding training to participate, and emphasising on the critical thinking and conclusion making by the learners themselves. This argument is consistent with the concept of Phetcharee Rupavijetra (2006: 147) who suggests that training with workshop technique is considered as a training method that allows larger participation from participants. Workshop method supports participants to learn together through the activities of the workshop and to promote cooperation among the participants. This method relies on the gathering of people to exchange knowledge and experience in order to make plan, set revisions, solve problem, and lead into implementation according to the objective or the identified demands of group.

1.2 Step 2. Monitoring/follow-up in the classroom is the important step for the lecturers who participate in this research project. They can contribute to the knowledge and understanding gained from the training and the learning management plan (prepared in the step of training) to use with the students who take the course of Thai Language 1. This concept in developing the learning management skill for the new generation lecturer focuses on the development of lecturers, the training of the lecturers at their full potential, and the creation of highest benefit to the learners. This research tries to enhance the critical thinking skill for the students. In this step, the lecturers are the creators who also improve the learning within themselves through daily work and brainstorming of learning ideas with the others following the research step of action research of Kemmis and McTaggart (1988) which is composed of three steps, i.e., planning, implementation and observation, and reflection. The action research is the concept that reflects the implementation plan by the lecturers. This method has a structure of processes that facilitate the critical thinking in the implementation and promote the professionalism development (Sparks-Langer and Colton, 1991: 37). This method not only captures the values of knowledge in teaching that occur while the teaching proceeds but also analyses the research process with clear linkage between critical thinking and implementation. This linkage requires revisions before and after the implementation (Phongphan Trimongkolkul and Suparp Chatraphorn, 2000: 188).

1.3 Step 3: Summary and evaluation. This is the implementation part for drawing conclusions on opinion and evaluating the results of learning management that enhances critical thinking as the general picture of all the lecturers who participate in the research project from three campuses; this set of results is important to check whether the implementation has achieved the objectives of the development or not (the critical thinking enhancement). The achievement of this set of objectives is considered from the implementation by the teachers and the sharing of knowledge and experience from their work place among the lecturers. This implementation involves collaborative learning and reflection on the implementation after the learning management by the teachers themselves and among the lecturers'

circles. The reflection process involves all parts of the implementation process. This process is consistent with the suggestion of York-Barr et al. (2001: 9) who state that this process can enhance various perspectives of the lecturers. Looking at the occurring problems from different perspectives or point of views would bring efficient solution and would lead to understanding, acceptance, widely accepted implementation steps, and benefits to the instructional development. This efficiency is also reported with the concepts of Bailey et al., (1998), Farrell (1998), Stanley (1998), Thiell (1999), and Crandall (2000) who state that the process that can create learning, revision, critical thought, and reaction with lecturers' circles can materialize into incurred situation to develop their works in the future. This process also enhances socialisation skill to learn to listen and accept others' opinion and thus improving adjustment of the lecturers to work with others.

2. The results of implementation of the learning management skills that enhance critical thinking

2.1 The results of studying the self-directed learning manual for the lecturers show that they can increase their post-test scores from the pre-test scores on general knowledge of learning management that enhances critical thinking. This result is congruent with the concepts of Pranee Sarajit (1994: 72) and Werther and Davis (1981) who show that self-directed learning manual can enhance the teaching capability skill among lecturers. This result is also consistent with the research findings of researchers such as Yupadee Manapakdee (1990), Kampun Gommugcho (1992), Chanya Apipalakul et. al. (2002), Calabrese (1982), Anderson et al (1986), and Pelt (1989). These researchers analyse the development of lecturers with the training technique of the self-study learning manual. The findings show that the lecturers who get the training by such technique have better learning management skill in their implementation.

2.2 The results from workshop meeting show that the lecturers' opinion on the meeting for all listed items is above "high" level. The level of evaluation of the learning management plan that enhances critical thinking in the course of Thai Language 1, as prepared by the lecturers and evaluated by three experts, shows the quality at above "good" level. The results of meetings provide the guideline for developing critical thinking for the learners which is consistent with the concept of Phetcharee Rupavijetra (2006:142) who concludes that the training technique using the workshop allows the participants to exchange the learning, listening and suggesting opinion among one another that they can seek for ways to develop their own skills for work. They can also bring the result from the meeting to apply in daily life which is in accordance with the psychology for adults learning of Jongkolnee Chutimathewin (1999: 3-4). Adults have quick learning ability if they are allowed to participate in the training activity, especially in actual implementation. The concentration of adults is quite short so they basically prefer learning through direct experience. A proportionate mixture of several teaching methods should be applied with various media to yield good learning results. The technique that focuses on practice is best for lecturers so they can apply with understanding which is consistent with the domestic and oversea researches such as Natjaree Thammatatnanon (2003), Wiyada Rattanasuwan (2004), Notzer and Abramovitz (2008), Dietz-Uhler and Bishop-Clark (2008), Totten et al. (2008), Miller et al. (2010), Schaubhut and Gentry

(2010), and Horng-Ji Lai (2010). They all use the workshop method in developing the learning management and instructional development. All findings show that the workshop meeting can develop effectively the learning management of the lecturers who participate in the workshop.

2.3 The results of learning management that enhances critical thinking of the lecturers who participate in the research project show that the students from all seven classes from three campuses have the higher average post-test scores on critical thinking than the pre-test scores. The lecturers who participate in the project implement the learning activity according to the learning management plan in order to enhance the thinking process by following the six steps of critical thinking development. These are the steps of introduction into thinking activity, the step of proposing the thinking situation, the step of individual thinking, the step of thinking training in small group, the step of summary and discussion, and the step of evaluation.

Each step stimulates the students to think critically. In the step of introduction, the lecturers stimulate the students to warm up into the thinking process. Developing critical thinking requires creation of motivation among the learners (Bloom, 1976 cited in Preeyaporn Wonganutrohd, 1992: 92-93). After that a situation is created through a handed out article to stimulate the students' interest to the learning contents because the thinking process can be developed through stimuli and new knowledge to be answered (Piaget, 1962). After this session the students are trained to think critically as individuals. They must analyse, synthesise, and criticise the information reasonably. Afterwards the students are trained to think in small groups. This step exposes the students to gain various worldview from friends in groups. They are trained to listen carefully, discuss reasonably, discuss logically, and draw conclusion together. Subsequently, they present their thinking results in front of the classroom. Finally they discuss with the lecturers and the friends together in order to draw the most reasonable conclusion and evaluate their own thinking. This process is consistent with the concept of Andrea (1997: 35) and Ennis (2000: 6) who propose that the instruction for critical thinking will expose students to think freely and to offer various answers without worrying about correctness of the answers. They are not afraid to show their reasons and their conclusions. They have broad-minded to listen to others' opinion and absorb the behaviour of social relation in their society of learning exchange (Vygotsky, 1978), which will develop critical thinking skill more efficiently.

Another important factor in teaching management is the instructional media, which are the reading of situation, events, and information, because this set instructional media promotes critical thinking. This factor is consistent with the findings of Bandura (1989 cited in Sompoch Iamsupasit, 1996: 51-52) who states about the learning through observation of models of the media to help learning, analysing, and criticising efficiently. Similarly, the research findings of Phasin Tangchuang (1993) who studies the psychology factor that influence the learners also reveal the same patterns. Some of the studies on the media usage show that the learning is actually reaction between learners and learning media. If the learners are satisfied with the media used, the learning tends to be highly equally effective. Another research finding also shows that the lecturer who arranges the learning climate that facilitates the expression of thinking freely, following the learning theory

of Roger (1962) that emphasises on the learner-centered method by arranging the environment that facilitates the learning, will evoke the expressing of learner's opinion. The results of learning management of the Thai language Lecturers who participate in the research project are consistent with the research findings of Penpisut Nakamanurak (1994), Maliwan Somsak (1997), Mayuree Runkham (2001), Somchai Rattanathongkom (2002), Narumon Sarataphan (2003), Asamani (1995), McCrink (1999) and Erickson (2000). These researchers' findings reveal that the learning management to construct critical thinking affects positively critical thinking of learners.

2.4 On the aspect of students' attitude toward the learning management that enhances critical thinking, they show opinion toward the learning management at "high" level in all listed items. This result shows that the learners are satisfied and enjoying while doing learning activity as the result of being able to express their opinions freely and discuss with friends and lecturers, which is part of developing the group working skill. These results are equivalent with the findings of Narumon Sarataphan (2003). Her findings reveal that the learning climate that can develop the thinking should be friendly, enjoyable, relax and not too much serious. The learning content is made to be interesting to the learners and they can apply them in daily life. The lecturers must show friendliness, warm personality, kindness, politeness and openness to give opportunity for the learners to express their opinion freely, exchange ideas, and join in various activities which is consistent with the research of Beck (1995). Beck (1995) attempted in a research using the collaborative learning of nursing students, and the research findings show that the students are satisfied with such learning method to the highest level because the method allows them to do activity together. The group work or group discussion is the climate that enhances positive and critical thinking (McKeachie, 1998 cited in Anonymous, 2001).

2.5 Lecturers' attitude toward the model for construction the learning management that enhances critical thinking shows that the development model is a completed cycle. It has a training that provides knowledge and creates skills in cognitive domain, i.e., the lecturers' knowledge on learning management that enhances critical thinking. This model also leads to psychomotor domain or the lecturers' skills to prepare the good learning management that can be applied in the classroom and yield good result on the students as stated in the set objectives. Finally, the model affects affective domain or the lecturers' attitude toward the development model as a useful method because the knowledge and understanding gained can be applied in the classroom through each step of collaborative learning. Planning, implementation and reflection after the implementation of the learning management plan create a shared learning, exchange of ideas, and suggestions for further revision of learning management to be more effective. This process is analogous with Thompson's proposal (1992: 139) that exposing lecturers to participate in solving instructional problems by themselves, evaluating and reorienting their own beliefs through reflection of the implementation would lead to positive adjustment and desired instructional behaviour. This proposal resonates well with some other research findings such as Chuleekorn Yimsut (2009), Tompkins (2009), Frick et al. (2010), Wolfensberger et al. (2010), Cavanagh and Prescott (2010) and Yoon and Kim (2010). These researchers all use the reflective approach in developing the learning management skill of lecturers in the class. The study findings also show the reflective

approach is highly valued as a instructional strategy and can develop the learning management skill as stated in the objectives of the development.

These research findings show that the developed model that applies the collaborative learning is the appropriate method to develop learning management skills. The lecturers learn to work with peers, which is consistent with Thirteen Organization's (2004) statement that reaction between small group and big group opens the opportunity to reflect the various responses from each lecturer. It is a helpful exchange and consistent with the concept offered by Imel Susan (1991: 4) who discusses about the benefit of collaborative learning to enhance democratic thinking, decision-making, and group power by allowing participation in learning that is a truly understanding about the potential and power of the group through the assistance to positive individual development. Thus the ability of adults to draw improvement from their previous experience by criticising it against their previous knowledge is growing. This research finding also correlates to the research findings of McDonald and Walters (2009), Kotelawala (2010), Murata and Tan (2009), Bowne et al. (2010). These researches on collaborative learning are accomplished among the lecturers in developing their learning management. The findings reveal that the collaborative learning affects the development of more efficient learning management and show that collaborative learning is highly valued as a instructional strategy.

3. Suggestions

1. Suggestions to the application of the research finding

1.1 In applying the developed model, the lecturers, especially the ones who teach similar subject, should make the implementation plan together because the step of working together requires some time. In this manner, the results on learner-centered method are well focused.

1.2 In implementing the developed model, it is imperative to create readiness of the lecturers who participate in the development steps. The readiness is the awareness about shared learning, open-mindedness to accept the shared working and learning, willingness to exchange ideas, and acceptance for suggestions from lecturer peers. Besides, the learners have sufficient time to work together because there are steps that need to practice inside and outside classroom before the steps can yield good implementation result.

1.3 The lecturers who teach other subjects can apply the developed model to the other subjects as well. The lecturers can adjust the skill development process such as skill in making the manual, arranging the meeting consistently with the learning content of each subject.

1.4 The administrators of the educational institutions can try the development model into developing personnel's skill on the learning management that enhances critical thinking in their workplace. In early period, this model is used with the lecturers who are interested in and show readiness to participate in the development. Then later, the interest expands to the other lecturers. There should be support on the development of learning management skill by facilitating on skills budget, teaching materials, and venues.

2. Suggestion for future research

2.1 There should be a research on the development of learning management skills that enhances critical thinking for the Thai lecturers in other levels such as in secondary schools and vocational education institutes.

2.2 There should be a research on collaborative learning and reflective approach in development of learning management in other forms such as the learning management through online systems.

2.3 There should be a research on the development of learning management skills that enhances critical thinking in other form such as in the use of information technology in its development.



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