

Chapter 1

Introduction

Rationale and Significance of the Problems

At the present, the world has changed along with the globalization trend. People of every region could access various sources of information and knowledge as a consequence of the progress on information technology, particularly the telecommunication technology. However, every country has to face economic competition. They then have utilized the natural resources with any limitation resulting with the eroded environment problems affecting the quality of life of human beings in general and various kinds of social problems. For all these impacts, Thai society needs to adjust itself to keep up with the situation as well as to build up societal capacity to assure her existence in the world community with dignity and happiness.

One of Thai society's desirable characteristics is its being a learning society that could keep up with the competitive world and yet take part in the construction of collaborative one. Its people have been equipped with capacity, discipline, and morality basing on the relevant religious principles. They are also with freedom, kindness, respect to human rights, happiness, with warm family, strong community, peace, well-balanced and stable economy, sustainable environment, societal security, and co-existence with nature. To organize the education to develop people to understand and maintain their life towards such goals is extremely needed. It must a quality education to assure the people's existing capacity to be developed to its highest peak. The target people should be the ones who know how to search for knowledge from the various learning resources, learn from them, and construct their own body of knowledge so that they could adjust themselves to the rapid changes to be self-reliant, happily maintain their life in the society, and lend hands to collectively build up the society with such desirable characteristics. The people would be successful in the information era have to be creative, analytical, and able to solve the problems in critical way. (Office of the National Education Commission, 2002)

The National Education Act B.E.2542 was to provide education that helped turn the Thai society onto wisdom-based and learning society making all Thais thinkable, practical, reasonable, and able to engage in life-long learning. They should have thinking skills and process to manage and cope with the situation and apply knowledge to prevent and solve the problems in their everyday life maintenance (Office of the National Education Commission, 1999). Ministry of Education (2008) had also prescribed similar goals in B.E. 2551 core-curriculum indicating that education being provided had to aim at making the learners knowledgeable and competent on communicating their thinking on problem solving, technology, and life-skill. The competence expected to be acquired by the learners included their ability in analytical, synthetic, creative, critical, and systematic thinking leading to their knowledge construction to base their decision making on themselves and the society in an appropriate way.

Critical thinking is a cognitive process having been emphasized in the curriculum. It is the cognitive skill and process starting at getting the information

before analyzing, synthesizing, making decision, and/or solving the problem basing on reasoning rather than feeling and guess. The person should open for all the possibilities basing on various points of view to conclude which is true or correct using their critical thinking and intelligence without bias. This kind of thinking has a certain goal and is based on reasons assuring the correct and valid outcomes. The critical thinker could assess and evaluate his/her own thinking. At the present, education circles around the world have realized the significance of critical thinking skill believing that the skill should facilitate the learners to successfully achieve the learning goals. Critical thinking has then become a prime goal for educational provision. It has become a desirable characteristic of the learners at all levels. The learners should be able to criticize the information, events, and phenomena occurring near or far away from them and apply the skill in various situations (Norris, 1985: 40-43). Critical thinking is a necessary competence for the people to be developed to keep up with the changes in the world society to come (Dennis & Marry, 1990: 42).

From the report of the 9 year-long operation of the educational reform, 1999-2008, it is found that at the basic education level, the academic achievement mean score of Mathayom Suksa 3 students tends to be lower down. The results of the second round assessment (2007-2009) carried out by the Office for National Education Standards and Quality Assessment also reveal that the school could provide instruction for the learners to successfully achieve the standard in cognitive domain but for the good level of their analytical, synthetic, creative, and critical thinking, there were only 10.4% of the 30,010 schools having been assessed which could achieve it (Office of the Education Council, Ministry of Education, 2009: 3). The findings confirm the fact that, besides academic achievement, Thai students need to be developed on their thinking competence, particularly that on critical thinking which is the foundation for other kinds of other quality thinking. If the students could acquire critical thinking, they would succeed in their study.

The Prince Royal's College which is a large private run school with which the researcher has affiliated had carried out a self-assessment in 2010 academic year and found that on Standard 4 which requires the learners to have ability in analytical, synthetic, critical, and creative thinking and vision, the School had set the goal at very good level. The assessment result came out only at good level. From the interview with 20 lower secondary education level teachers who carried out their mission in 2010 academic year on the lower secondary education students' learning behavior and performance, it was found that most of the teachers reflected that the students did not know how to think. They could not answer well on the test with open-ended questions or when they answered them their answers did not truly answer the question nor lacked of facts and logic to support the answer. These are the case though The Prince Royal's College is the lead in the school developing programs such as those on brain-based learning, the project to move the self-sufficiency economy philosophy into school, energy and environmental conservation model school, etc. These projects were to encourage the teachers and students to learn and put into practice the activities through thinking process. However, through it is the school's policy to emphasize on teaching the students to think, the teachers have not yet got together in conceptualizing how to teach the students to think, particularly in the aspect of critical thinking which could be promoted in every strand. This research was to provide the

space for teachers from all learning strands to collectively learn about it and find the methods to promote this type of thinking onto the students to higher extent.

From such assessment report and the teacher interviews, it is evident that there is a need to promote the learning that emphasizes the critical thinking process to serve as the foundation for other types of thinking to grow on. Concerning this, Nekmanurak, Penpisut (1994) stated that the problems on the learners' thinking emerged from the learning process and quality of the teacher's instruction. Most learning activities run by the teachers still rely mostly on the teacher's lecture and the students are supposed to memorize the materials rather than construct and develop from what they have learned. Regarding this, Chareonwongsak, Kriengsak (1996) had pointed to the instruction conducted by most teachers that it was the provision of knowledge rather than encouraging the students to engage in reasoning, analyzing, synthesizing, solving problems, nor searching and constructing knowledge themselves. Khemmanee, Tissana (2001) pointed out a problem related to the effort to develop the students' thinking. She observed that the teachers themselves lacked knowledge and understanding on the thinking process. They did not have clear idea of each of the thinking modes – their model and procedural steps to generate the quality outcomes. With such weakness, the teachers often taught by instructing the students to do things along their ability before checking their work. This type of instruction could open for the students to think but the teacher did not provide enough supports to facilitate the learners to learn how to effectively think. The study carried out by Arch-in, Sittipon (2006) on problems and needs on learning provision to develop the critical thinking of the teachers in science strand at the elementary education level reveals that at the present the teachers' effort in providing learning to develop the students' critical thinking was at minimal level and the teachers themselves have encountered with the problems on how to provide the learning to develop the students' critical thinking.

Teaching the learners the thinking ability should take its first step when the students entering the school. It is the crucial step to prepare and facilitate the youngsters to become thinkable persons in the future. They should be helped to thinking and develop their own thinking capacity to reach the highest peak. These educated individuals would then effectively serve the nation's goals. In providing learning and teaching to develop critical thinking skill, both the teacher and the learners have to have clear understanding on the meaning of critical thinking used in all the learning strands. Not only to understand basic knowledge, the learners have also to know how to use the knowledge to determine the reliability of the materials used in the analysis to evaluate the decision done to correctly solve the confronting problem. The teacher has the role in helping the learners to acquire sufficient knowledge to be able to utilize it and reach the point where they could "think and do by themselves." The teachers of every learning strand have to have competency in providing learning and teaching to develop the students' critical thinking. They have to help their learners to realize the significance of critical thinking. They should recognize that critical thinking skill could be developed along other learning skills such as reading, writing, calculating, discussing, searching, problem solving, or decision making, etc (Office of the National Education Commission , 2001: 8)

Getting supports and engaging in the idea exchange are crucial in conceptual changes among the teachers. Collaborative learning of the teachers in the same

learning strand sets the opportunity for Them to exchange using knowledge and experiences including the external sources of information to discuss, analyze, and criticize to come up with the strengths and weaknesses of the information are parts on the process to develop the teachers' critical thinking. This process requires interaction with other people to allow many perspectives to come up before reaching the best decision or most suitable action. Collaborative learning serves also as a strategy to help one another in assessing the information, evaluating the conclusions, and reflecting on the thinking process. These cognitive experiences of the teachers could be effectively transferred to the students' learning process. For all these, the researcher has become interested in using the collaborative learning to develop the teachers' critical thinking and develop their teaching at the same time.

Normally, those who are teachers are well aware of their instructional development missions. The educational system carried out so far, however, has not required the teachers to assess and reflect on their teaching as it should be. Section 4 of the National Education Act has prescribed the school's duty in supporting and encouraging the teacher to do the research to develop the learning and teaching. This assertion has confirmed that the direction of this educational reform has focused on the teacher's instructional development through the process of action research. This research process is based on systematic actions to develop the teacher's competency in carrying out his/her duties. The process is also to develop the teacher's critical thinking so that they could follow up his/her own action. The stakeholders included the teachers of all the learning strands, the observers including the researcher and the colleague teachers in the learning strand all of whom participate in the actions and analyze and criticized the performance outcomes. This research process is composed of 4 procedural steps. The first one is the Plan step which is about the attempt understand the concept of critical thinking. It's about the teacher's plan to adjust knowledge and understanding about critical thinking. The knowledge gained is used to analyze the curriculum by getting into the details of the standards, their indicators, learning substances among which are those facilitating the teaching on critical thinking. Afterward, the model, steps, teaching methods, and learning assessment are set up as the learning plans. The second step is the Act and Observe. In this step, the teacher uses the plans designed for enhancing the students' critical thinking. The plans are used in the classroom along with the observation on the results of the actions and collect the information by the teacher and the observers. The third step is the reflection. At this step, the teacher compiles all the information collected through observation including the problems occurred to be used in reviewing the instructions. The process includes the discussion among the teacher who taught and other teachers in the learning strand and the observers to derive the guidelines for improving the plans in the next cycle of action. Action research offers a clear process for the teacher to develop her/his teaching and help the teacher to widely understand critical thinking, its process, and ways to develop it. The teacher and others involved could further search for additional knowledge to be able to solve the problems should they occur in the next round of practice on effective basis.

From all these, the researcher as the Head of the Lower Secondary Education Section of The Prince Royal's College has become interested in developing critical thinking teaching competence of the teachers who teach in the 5 major learning strands, namely, Thai language, mathematics, science, social studies, religion, and

culture, and English language at Mathayom Suksa 1 through collaborative learning and action research. Mathayom Suksa 1 students are entering adolescence period with a lot of energy and always want to express in various forms. If they have good thinking mode such as being critical, using reasoning, and searching for reliability of the information, they could apply these principles in their everyday life. This development of the teachers' competence in teaching critical thinking is aimed at encouraging the teachers to apply knowledge and understanding acquired to be used in organizing the learning activities to develop the students' critical thinking.

Research Objectives

1. To construct a handbook to enhance knowledge and understanding on critical critical thinking for collaborative learning taken part by the teachers
2. To study the effects of using the handbook in enhancing knowledge and understanding on critical thinking teaching at Mathyom Suksa 1 through collaborative learning and action research in terms of:
 - 2.1 Teacher's competence to analyze the curriculum content appropriate for teaching critical thinking
 - 2.2 Teacher's competence to plan for their instruction to enhance students' critical thinking in their responsible learning strand
 - 2.3 Teacher's competence to implement the developed instructional plans
 - 2.4 Student's critical thinking developed as the impact of using the teachers' instructional plans
3. To analyze problems and obstacles in teaching critical thinking
4. To propose guidelines for the development of lower-secondary school teacher's competence in teaching critical thinking

Scope of the Research

This research was to study and develop the competence in teaching critical thinking of the teachers of 5 learning strands, namely, Thai Language, Mathematics, Science, Social Study, Religion, and Culture, and English Language at Mathayom Suksa 1 level.

Population Scope

1. Teachers who teach in and heads of each of the five learning strands at Mathayom Suksa 1-3 level, in 2012 academic year at The Prince Royal's College
2. Mathayom Suksa 1 students, enrolled in 2012 academic year at The Prince Royal's College

Content Scope

With this research, the researcher studied the development of the competence in teaching critical thinking which would cover: 1) Teachers' ability to analyze the curriculum, 2) Teachers' ability to plan for their instruction to enhance students' critical thinking, 3) Teachers' ability to implement the developed instructional plans, 4) Students' critical thinking behavior resulted from the teachers' use of the instructional plans, 5) Problems and obstacles in carrying out the

instructions, and, 6) Guidelines for developing lower-secondary school teachers' competence in teaching critical thinking

Research Variables

Independent Variable:

Collaborative learning and action research to enhance the teacher competence

Dependent Variables:

- 1) Teachers' competence to analyze the curriculum for integrally teaching critical thinking
- 2) Teachers' competence to plan for their instruction to enhance students' critical thinking to enhance the students' critical thinking
- 3) Teachers' competence to implement the developed instructional plans
- 4) Students' critical thinking behavior resulted from the teachers' use of the instructional plans
- 5) Students' critical thinking behavior resulted from the teachers' use of the instructional plans

Operational Definitions

Critical Thinking is referred to the cognitive process used to promote various kinds of quality thinking, particularly analysis, synthesis, decision making, and problem solving. These kinds of thinking are based on critical thinking, reasoning, and reliability of the information leading to critical analysis, critical synthesis, critical decision making, or critical problem solving.

Critical Thinking Teaching Competence is referred to the ability of the teachers in analyzing the curriculum, planning for learning organization to enhance critical thinking and to implement the developed learning packages to launch the instruction to achieve the expected outcomes.

Curriculum Analysis is referred to the consideration on details, standards, indicators, and contents of the 5 major strands, namely, Thai language, mathematics, science, social studies, religion, and culture, and English language at Mathayom Suksa 1 level in one semester for the teachers to select the content facilitating critical thinking with reasoning, logic, and reliability of the information.

Instructional Planning is referred to the setting up of the model, procedures, teaching methods, instructional media, and measurement and evaluation to emphasize the teachers' critical thinking for the 5 strands, namely, Thai language, mathematics, science, social studies, religion and culture, and English language at Mathayom Suksa 1 with reasoning, logic, and reliability of the information.

Learning Plan Implementation is referred to the teachers in the 5 learning strands - Thai language mathematics, science, social studies, religion, and culture, and English language at Mathayom Suksa 1 level implement the instructional plans designed to facilitate the students to practice critical thinking including problem solving which might occur during the instruction or adjust them to fit the teaching context with critical, careful, and reasoning thinking and the focus on reliability of the information acquired.

Development of the Competence in Teaching Critical Thinking is referred to the promotion of knowledge and understanding on critical thinking and teaching competence of the teachers via collaborative learning approach and action research using the handbook on enhancing the knowledge and understanding on teaching critical thinking developed by the researcher.

Collaborative Learning Approach is referred to the approach to help, support, or exchange ideas among the teacher in the same learning strand to facilitate one another in gaining perspective that could be used to adjust the concept and critical thinking with criticism, reasoning, and reliability of the information used to collaboratively analyze the curriculum, set up the instructional plans, and carry out the instruction and reflect on the performance.

Action Research is referred to the collaboratively instructional planning and implementing the missions of all the teachers in the same learning strand in the process of developing their teaching critical thinking competence which is composed of 3 procedural steps, namely, Plan, Act, and Observe, and the Reflection on the performance.

Plan is referred to the compilation of the teachers' knowledge on critical thinking before using it to analyze the curriculum considering the details on standards, indicators, content of the learning strand to come up with the content relevant to the teaching on critical thinking and set up the model, procedural steps, teaching methods, and evaluation before coming up with the learning providing plans.

Act and Observe is referred to the teachers using the instructional plans designed for teaching critical thinking in the classroom along with the observation of the performance outcomes and collecting the information on the operational outcomes by the researcher and other teachers in the learning strand.

Reflection is referred to the uses of the outcomes realized through the observation and information collection on the problems occurred in the implementation of the instructional plans on teaching critical thinking to review, evaluate, or investigate the problems or constraints that obstruct the instruction. The reviews are done through the discussion and brainstorming by the teacher and his/her colleagues in the same learning strands to get the guidelines for improving and set the plans for the next cycle.

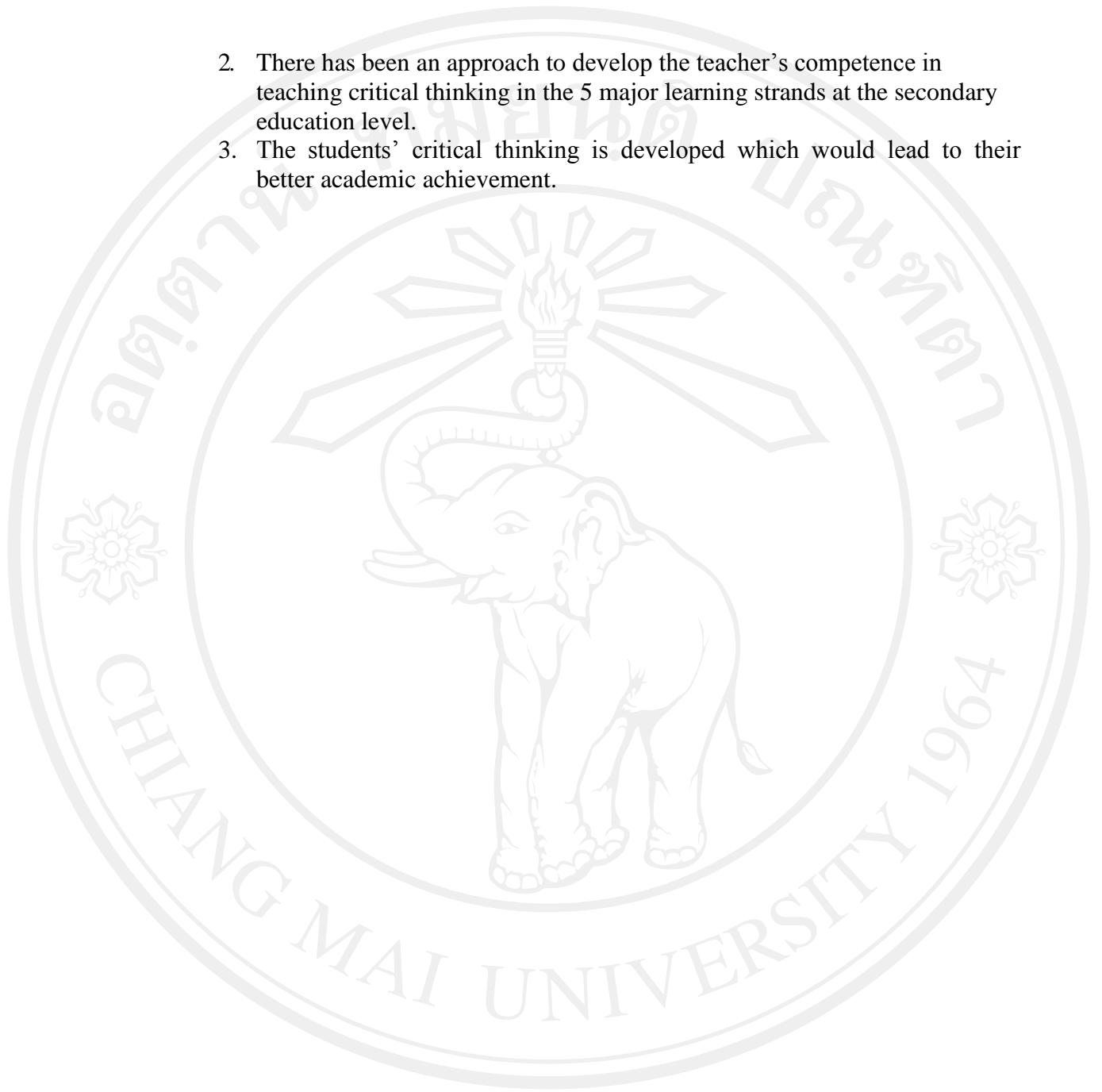
Developed Critical Thinking Behavior of the Students is referred to the behavior of the students that are driven out by their critical thinking, reasoning, and the consideration on reliability of the information on all the learning plans collaboratively constructed by the teachers in the same learning strand.

Problems and Obstacles of the Teachers in Teaching Critical Thinking is referred to the conflicts or factors that made the operation unable or delayed to achieve the set goals occurring during phrases of curriculum analysis, instructional plan setting up, and instructional plan implementation.

Expected Outcomes

1. Teachers in the 5 major learning strands at Mathayom Suksa 1 level are competent in analyze the curriculum in the learning strand for teaching critical thinking.

2. There has been an approach to develop the teacher's competence in teaching critical thinking in the 5 major learning strands at the secondary education level.
3. The students' critical thinking is developed which would lead to their better academic achievement.



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