# Chapter 1

# Introduction

## Background and the Significance of the Problem

The rapid changes in the realms of socio-economic, politics, education and information technology have brought progress on the material aspects more than on those of the mind. The changes bring the degradation of society in terms of morality and ethical consideration. Nevertheless the capability of the Thai students to competition with the other students at the international level is still not sufficient. Facing such a condition, the students are increasingly confused and building inner conflicts within themselves and in their social groups. To deal with this problem, the students need to build a complex thinking capacity that would qualify them to respond appropriately to the actual problems (Office of National Education Commission, 2001: 1). The following-up after ten years of the implementation of the important curricula (e.g. the Elementary School Curriculum B.E 2521 (Revised Edition B.E. 2533), the Lower Secondary Education Curriculum B.E 2521(Revised Edition B.E. 2533), and the Higher Secondary Education Curriculum B.E 2524 (Revised Edition B.E. 2533)) reveals that these curricula have so many constraints that impede the promotion of the Thai society to be a learning society. These constraints are appearing in many forms such as the failures of the curricula to create the solid foundation of thinking method, to create the learning methods for the Thais to learn the management skills, and to train them skills to live their lives efficiently while facing the problems related to the rapid societal changes (Ministry of Education, 2001: 1). In order to build into the Thai students these desired characteristics, the National Education Act B.E. 2542 Chapter 1 Section 7 has identified the objectives for the educational arrangement in such aspects that the Thai students can develop decencies at the levels of physical, mental, intellectual, knowledge, morality, ethical and cultural in living their lives with others. Besides, the National Education Act B.E. 2542 Chapter 4 Section 24 has identified an educational arrangement through which the educational institutions and other relevant sectors implement the trainings on the skills of thinking, facing real situations, applying

knowledge to prevent problems, solving the actual problems, building creativity, and training to implant eagerness to learn. The educational standard criteria for the external quality assessment in Basic Education (the Standard Criteria number 4 on Learners) has stated that the learners must be able to analyze, synthesize, think critically, develop creativity, practice reflective thinking, and build visions (Ministry of Education, 2546: 5-12). Thinking is one of the important mechanisms in learning to distinguish between the indecent and decent things (clear conscience). Therefore, thinking is an indispensable characteristic to promote among the Thai children (Ministry of Education, 2542: 1). While living in the world in the near future, the students must have capabilities and skills to solve their problems creatively that they can live their life satisfactorily (Somsak Phuvipadawat, 2001: 1).

Some 17,562 schools under the Basic Education from all over the country, or 49 percent of all education institutions, are assessed through an external quality assessment by The Office for National Education Standards and Quality Assessment (Public Organization). The general results of this assessment on the Standard Criteria Number 4 on Learners reveal that the students are capable to analyze, synthesize, think critically, solve problems creatively, think reflexively, and show vision. The general findings show the whole picture of the learners: around 13.2 percent of the students reach 'good' level in thinking skills, about 73.1 percent of them gain 'fair' level, and 13.7 percent stand in 'need improvement' level. The results of the external quality assessment in Basic Education on the Standard Criteria Number 4 show the levels of students' capabilities for analytical thinking, synthesis-type thinking, critical thinking, creative thinking, reflexive thinking and visions of the students in the schools under the office of Chiang Mai Educational Service Area Office 2. The findings reveal that 8.3 percent of the students reach 'good' level at thinking skill. The majority of the students (66.7 percent) gain 'fair' level and the rest (25.0 percent) stand in 'need improvement' level. The evaluated thinking skills are also categorized into several sub-skills. The evaluation of these sub-skills in thinking shows that most of the students (50 percent) stand at "need improvement" level in synthesis thinking. Twenty five percent of the students stand at 'need improvement' level for critical thinking and reflexive thinking. The third skill standing at 'need improvement' level is the skills on creative thinking and imagination (16.7 percent) and the fourth is analytical thinking skill (8.4 percent)

(The Office for National Education Standards and Quality Assessment, 2005, Letter). Consideration over the results of the external quality assessment in Basic Education by The Office for National Education Standards and Quality Assessment clarifies that the development of the thinking skills for the students is a crucial problem at both local and national levels.

The studies about the teaching problems to the students have shown that there are many relevant factors that can cause problems such as the teaching methods, the classroom atmosphere, the teacher's roles, and the student's roles. The thinking process is not the learning contents that the teachers can understand and teach to class easily. Thinking is a form of process. Therefore the teachers should teach thinking by using the teaching form of thinking as a process (Office of the National Education Commission, 1997: 1). In searching for the methods to develop thinking skills, Nickerson (1984: 26-36) suggests that teaching must be done to develop the thinking skills as a procedural thinking. Therefore, there are two methods available. The first method is undertaken through the method to teach directly by using the teaching media programs, training exercises, lessons or activities in order to develop thinking process skills. The objectives of this first method are to design the development of the thinking skills among children. The contents of such program and teaching media, however, will not be focused on the learning contents in the curriculum. Although the contents are used sometime to create the training exercises but the teachers do not measure any achievement of such subjects. Most of the contents used in the training exercises are the contents that have been designed to enhance the thinking skill development. The second method is utilized through the use of the learning contents in the curriculum. This second method inserts the thinking training or integrates the thinking to the learning content of the subjects in the curriculum. The teachers must be the knowledgeable persons who are capable of creating the teaching plans and understanding the teaching methods and teaching technique. This kind of teachers can inspire the students to train the procedural thinking skills along with learning the contents in the subjects. This research, however, will use the plan for thinking skill development with no focus on the contents of any subject. This research will use the knowledge, the news, and the current situation related to real life that the students are trained to connect the experiences in the training with the problems in the real life. In addition, this plan for thinking skill development will

expose students to the structure of thinking processes and to the guideline to clarify things the students face. Based on this reason, this study selects instant activities as the methods to develop thinking skills. A finding of a research conducted by The Office of National Education Commission (2001: 169) shows that using challenging activities (e.g. brainstorming, learning by doing, creative problem-solving, answering open-ended questions, expressing spoken or written opinion, role-playing, training exercise, using media and games, etc) are enjoyable for the students. And the preparation of the teachers and the learners can be done in such manner that the learners can develop or increase their thinking skill development.

Besides the previous factors, there are other important factors that influence the development of thinking skills such as the teacher's roles, the learner's roles and the atmosphere arrangement in the classroom. Hilgard (1973, cited in Aree Rungsinan, 2528: 94) argued that teachers' roles on promoting the thinking skill for the learners include the teachers ability to quickly shed the importance of the new thought for the students. The teachers must be patient for the failures among the students to understand the lessons quickly and for their small mistakes. For the students' roles that may heighten the thinking skill development, however, the number of study is still limited. Nevertheless some research have found that the students who are successful in study are those with certain objectives (e.g. purposes and efficient learning methods like planning, method of learning and evaluation, positive attitude toward learning, readiness on time, physical, psychological and budget). The classroom atmosphere is another important factor that supports the learners to build thinking skills. Osborn (1973, cited in Aree Rungsinan, 1985: 89) confirmed that a person can think efficiently with the safety of their mind and certain atmosphere that increases their thinking efficacy. Smith (1971, quoted in Aree Rungsinan, 1985: 89) argues that the best environment to develop the creativity among the children is the one that allows the learners to survey and independently study the subjects by themselves. Consequently, the teaching techniques, the classroom atmosphere, the teachers' roles, and learner's roles are the indispensable components in developing the thinking skills for the learners. Therefore the study on the development of the thinking skills should analyze the current situation and problems on the teaching techniques, class atmosphere, the teachers' roles and the learner's roles to be used as the data to develop such a development plan.

Regarding the development of the thinking skills for the students, the scholars worldwide agreeably emphasize that it should start at young age when the children still have the curiosity in high level. If the children are supported from the earlier start, they will develop their best potentials to think and maintain them in highest level. In this research, the researcher selects some Mathayom Suksa 2 students to be the samples for the chosen population. Some studies suggest that the prolific intellectual development among the children takes place during the age of the students at Mathayom Suksa 2 level (teenager in middle range between 14 and 15 year old). This is the age range where the children experience physical changes to be fully grown teenagers. These youngsters show deep concern and seek for their identities, to be their own selves and to severe the attachment from their parents. The children at this age range are usually reasonable, creative and capable to understand certain concepts known among adults (Department of Mental Health, 2003: 9). This fact responses to the intellectual development theory of Piaget (Valett, 1978: 33, citing Inhelder and Piaget, 1958) that argues that the children's understanding in the use of logic use begins at the age of 11 and it develops at the age of 15-16. The children in these age range can think about abstract and concrete problems. They can create reasonable assumptions and think back and forth perfectly following the logic plan of Piaget.

With such problem and reason stated above, it can be seen that developing the learning activities to promote the thinking skills for Mathayom Suksa students is necessary for them. The students need to learn the analytical thinking, synthetic-type thinking, critical thinking, and Meta Cognitive thinking for using the skills to adjusting themselves and solve problem appropriately which will affect their lived in the society.



**Research Questions**

1. How/What are the present conditions and problems in the teaching techniques, the classroom atmosphere, the teachers' roles and the students' roles related to the thinking skill development in the schools under Chiang Mai Educational Service Area Office 2?

2. What is the characteristic of appropriate learning activities that promote the development of the thinking skills for Mathayom Suksa 2 students?

3.How does the implementation of the learning activities to promote the thinking skill development created by researcher affect the thinking skills of Mathayom Suksa 2 students?

**Objectives of the Study**

1.To study the current situation and the problem related to the teaching techniques, the class atmosphere, the teacher's roles, and student's roles related to the thinking skill development among of the students in the school under Chiang Mai Educational Service Area Office 2

2. To develop the learning activities that promote the thinking skills for Mathayom Suksa 2 students in the school under Chiang Mai Educational Service Area Office 2

3. To study the results of the implementation of the learning activities to promote the thinking skills for Mathayom Suksa 2 students in the school under Chiang Mai Educational Service Area Office 2

**The Assumption of the Study**

The students who access the training from the learning activities to promote the thinking skills tend have the means scores of the thinking skill achievement higher than the scores recorded before the training.

**The Scopes of the Study**

1. The scope on the population

The population studied by this research is about 3,328 students of Mathayom Suksa 2 from the schools under Chiang Mai Educational Service Area Office 2, in academic year 2007 and around 220 teachers of Mathayom Suksa 2 in the schools under Chiang Mai Educational Service Area Office 2 in academic year 2007.

2. The scopes of the study

The learning activities in the research will cover the following contents:

2.1 The thinking skills of the students. This study emphasizes on promoting five thinking skills, which are the analytical thinking, synthesis thinking, critical thinking, creative thinking and Meta cognitive thinking.

2.2 There are 20 Learning activities Plan to enhance the thinking skills, delivered in 90 minutes per plan (twice a week). Each learning plan has the guidelines

to arrange the activities in form of arranged situation for the learners to practice and use their thinking skills by following the thinking processes of the analytical thinking, synthesis thinking, critical thinking, creative thinking and meta cognitive thinking, or following the five thinking processes mixed together to solve the identified problems. The nature of the set problems are settled around the general knowledge, news, articles, the environment and the common situation likely to occur in daily life.

3. Variables in the study are as the followings.

3.1. Independent variables are the learning activities to enhance the development of the thinking skills

3.2. Dependent variables are the five thinking processes, which are:

3.2.1 Analytical thinking

3.2.2 Synthesis thinking

3.2.3 Critical thinking

3.2.4 Creative thinking

3.2.5 Meta cognitive thinking

**Definitions**

**The learning activities to enhance the thinking skills** mean the arrangement of the classroom atmosphere, the teacher's roles and the student's roles that facilitate the learners to develop their thinking skills through the teaching techniques of the conceptualization of synectics. The projects such as brainstorming, practices of critical thinking, participatory learning, problem-solving process skills, and the Jurisprudential Inquiry train the learners to practice their thinking skills on the process of analysis thinking, synthesis thinking, critical thinking, creative thinking and meta cognitive thinking. These projects also train the students to perform the integrated activities, mixed between contents and the steps to train on the thinking process so that they can solve the problems and connect the activities with the real life.

**The outcomes of using the learning activities to enhance the thinking skill** are the results in form of scores to measure the development of the thinking skills and to evaluate the thinking behavior of the learners who have been trained by the learning activities to enhance their thinking skills.

**The teacher's roles** are the teacher's expression of thought and apparent behavior towards students in arranging the learning activities.

**The student's roles** are the expression of thought and learning behavior of the students towards the teacher and the classmates.

**The classroom atmosphere** is the arrangement of the physical environment inside the classroom such as the tables, the seats, the teaching tools and the media, and the learning corner in the class. The arrangement on students' mind is undertaken to create the feeling of safety and to allow the students to participate freely in activities.

**The current situation and problems** are the known ways to arrange the learning in terms of the teaching techniques, the arrangement of the class atmosphere, the accepted teacher's roles and the student's roles related to the development of the thinking skills.

**The thinking skills** mean the capability to think and express their behavior through the efficient use of the analytical thinking, synthesis thinking, critical thinking and meta-cognitive thinking as evaluated using the Evaluation Form for Thinking Skills. Also measured is the expressed behavior in thinking by using the evaluation form (The Evaluation Form for Thinking Behavior).

**The analytical thinking skill**s mean the capability to think and express the behavior manifested in classifying the components of things or story to check for the connection between the larger component and the smaller components in order to investigate for the causal relationships, the truth, or the nature of the identified objects.

**The synthesis thinking skill**s are the capabilities to think and express behaviors in making connections among things or among concepts to reproduce a different thing or a new concept. These capabilities include the adjustment of the components to be the various characteristics and interesting responses to the needs.

**The critical thinking skill**s are the capabilities to identify the clear targets or the identified conditions. These capabilities included the classification of relevant data, the finding of the evidence from reliable sources, the identification of possible assumptions, the proposition of the reasonable answers or alternatives, and ability to predict the outcomes from the prior decision-making.

**The creative thinking skill**s mean the capability to think and express behaviors through identification of the desired objectives, to find solution to the problems (Fluency), and to bring the concepts to match with criteria (Flexibility). Then the persons with the creative thinking skills are able to readjust facts to the new and strange

concept (Originality). They can also select new concepts and adjust them to have more details (Elaboration) and values, from which new tasks may be recovered.

**The meta-cognitive skill**s mean the ability to think and express opinions to plan and identify the work targets, select the implementation methods, arrange the practice in order, categorize the possible problem and solution, check the planning, work in proper steps during the implementation and prepare the evaluation of the plan from the start, during the implementation and the after the implementation. Then the evaluation results are used to solve the problem.

**The schools under Chiang Mai Educational Service Area Office 2** are the educational institutions that provide education services for the students in the areas of Mae Rim District, Mae Taeng District, Sansai District, Prao District and Mae Sameung District (Chiang Mai Province). These areas are supervised by Chiang Mai Educational Service Area Office 2 so that these schools can arrange the education efficiently.

**Benefits of the Study**

1.To be a guideline to enhance the development of thinking skills on the analytical thinking, synthesis thinking, critical thinking, creative thinking and meta-cognitive thinking for the students at Mathayom Suksa level so that they can appropriately arrange plan and set to solve the problems in their lives.

2.To develop personnel to train the thinking skills to the students at Mathayom Suksa level together with the researcher and the relevant personnel in the education institutions that participate in this research.

3. The tools employed in this research to evaluate the thinking skill and the learning activities to enhance the capacity of thinking skills for the students can be applied to develop the thinking skills for the other groups of Mathayom Suksa students.

4. To be a guideline to develop the child-centered learning as has been identified in the National Education Act B.E. 2542 Chapter 4 Section 24, in which the educational institutions and the relevant sectors are encouraged to train the proper thinking skills.