

CHAPTER 2

REVIEW OF LITERATURE

In this chapter the researcher reviews the related literature in order to process and develop the conceptual framework in the study of the model and the results of the implementation of abilities in research and develop the local curriculum for the community teachers based on the constructionism theory learning process, integrated with the participatory action research with the following order.

- Development of Local Curriculum
- Research and Development of Local Curriculum
- Constructionism Theory Learning Process
- Participatory Action Research
- Evaluation of Abilities in Research and Development of Local Curriculum

Development of Local Curriculum

Before the discussion about local curriculum development, it is necessary to understand the general and specific definitions that would clarify the terms related to local curriculum development in this research. The researcher studies and analyzes the meaning of curriculum and local curriculum in the following order. Curriculum is defined in several ways. For example Jaithip Chuaratanaphong (1996: 9) summarized the range of definitions for curriculum starting from its concrete until its abstract forms, e.g., curriculum in the subject, curriculum as a plan, curriculum as an activity, and curriculum as a set of objectives or experiences. Joseph (2000: 1-2) stated that the nature of curriculum is flexibly changeable according to its contexts. Kathy Short and Carolyn Burke (1991: 1-4) offered an opinion that curriculum had several definitions according to many academicians who discussed about it. The variety of definitions for curriculum is depended upon the academician's point of view. Any academician who began to work as a teacher would prefer to use curriculum in term of identified contents in the textbooks, teaching manuals, and manuals for school curriculum. This point of view produces the guidelines for the teaching on the skills and the facts, and identifies the teaching media for the teachers to apply. But when the practitioners' belief about the teaching and learning changes, they start to survey the participatory learning processes and the classrooms with the highest emphasis on the learners. And this point of view produces a curriculum according to the interests of the learners. The teachers also adjust their roles in the provision of the data and equipment to realize the learning process for the learners as required and necessary. Producing a curriculum based on this new progressive guideline will bring forth an active learning community and the different definitions for curriculum.

The assertion of Kathy Short and Carolyn Burke reflects very well the trend of changes for the definition of "curriculum." This trend of flexible nature of curriculum definition heralds the new trend of the educational arrangement using a student-centered learning. The Thai society also perceives the importance of such thing through the identification in the National Educational Act of B.E. 2542 Section 22 that "the educational arrangement must be based on the principle that all students are

trained to gain abilities for learning and developing themselves.” The Act also considers that the learners are the priority. The educational arrangement process must thus support the learners to naturally develop their full potentials (Kurusapa Business Organization, 2000: 17). In this research the researcher uses a guideline to develop a curriculum according the definitions of the curriculum in all steps as explained above.

Therefore it can be summarized that the definition of curriculum always responds to the current situation in which a curriculum becomes the guideline to arrange the learning process. The educational process is arranged through consideration of the actual events at the time of the learning process arrangement. The priority is given to the participation during the learning process arrangement among the teachers, the learners, the school administrators and the specialists or experts who take part and support the guideline to arrange the process arrangement that the teachers and the learners have built together. The key questions in the creation of the manual of a curriculum are related to the proper components utilized for the curriculum.

Besides, each local community should develop its own local curriculum. Some experts have asserted that there should be a blueprint curriculum that can be adjusted, added, extended, or appended with sub-curriculum for local level. The blueprint curriculum is supplemented by the sub-curriculum for consistency and appropriateness to the necessary conditions or demands of the local communities. This sub-curriculum appears more like the practical guideline for the blueprint curriculum (Jaithip Chuaratanaphong, 1996: 15). Similarly Sunanta Sunthornprasert (n.d.: 4) also defined local curriculum as a curriculum developed from the frame of the blueprint curriculum to adjust the latter to be consistent and appropriate to the real conditions or the demands of the local communities.

From the definitions given above appears an interesting issue when a curriculum, which is prepared directly and consistently from the local communities' conditions and the demands of the locals, is not developed from the framework of the blueprint curriculum. Does this kind of curriculum classify as a “local curriculum”? To discuss such topic deeper, this research presents the issues that Department of Curriculum and Instruction Development, Ministry of Education (1996: 1-3) has presented about the important characteristics of the local curriculum. These characteristics are as the followings.

The identification of the learning contents related directly to local topics. The contents are identified and thus classified into units or specific subjects, or may be inserted in the contents of the other topics. The opening of chances for the locals to participate in developing the curriculum in order to be able to arrange the learning consistently with the conditions and demands of the local communities. The local communities can arrange the curriculum development in the following manners.

- 1) Adjust the teaching and learning activities.
- 2) Adjust the details of the contents.
- 3) Improve the existing teaching and learning media.
- 4) Arrange to prepare a particular set of teaching and learning media.
- 5) Set the production of the new contents or subjects.

In the development of local curriculum the communities and the schools cooperate in analyzing the local conditions and demands in order to make strategic plan. At the same time the teachers analyze the curriculum on the aspects of activities,

contents, and objectives. Later the teachers identify the guidelines for curriculum development that help the arrangement and adjustment of the activities and contents, the improvement for teaching media, the preparation for new media, and the addition of subjects. They apply the identified guideline to arrange the teaching and learning plan to teach the students.

The guideline for arrangement of local curriculum, which the Department of Curriculum and Instruction Development, Ministry of Education has identified, appears to allow more flexibility than a blind adherence to the blueprint curriculum. This guideline emphasizes more on the varieties of the local communities. Besides, the Department of Non-Formal Education (2000: 13-55) defines local curriculum as the experience that can inspire the learning and as the contents that are useful for the learners, all of which arising from problem solving by the local communities or responding to the demands of the local communities. This experience and contents produce positive changes that are appropriate for local conditions. The curriculum that the schools or teachers and the learners have created together to tackle problems and demands of the learners can be brought to use in real life with quality by the learners who can be good members in the society. Although the curriculum is constructed to solve the local problems or adjusted to the existing blueprint curriculum, it must be consistent with the learners' demands. It must take form in new and updated curriculum. The development process of local curriculum has three characteristics, which are (1) developed from the problems, conditions and needs of the local communities, (2) based on the national core curriculum, and (3) adhering to the local wisdom.

The development steps for local curriculum has some typical series of sub-steps composed of six sub-steps which are enumerated as the followings. First, the preliminary survey on the problems in the communities or analysis of the national core curriculum related to the problems in the communities, or survey on the local wisdom. Second, the analysis of the problem in the communities, the needs of the learners, the categorization of the problems and conditions, the needs affecting the learners followed by the establishment of a working team to develop a local curriculum from the local wisdom to work together to identify the boundary of the consistent contents to the community conditions and the needs of the learner. The third sub-step is related to the writing up of the Curriculum Map followed by the fourth sub-step, which is the preparation of the teaching plan. The fifth sub-step is the arrangement of the teaching and learning activities, followed by the sixth sub-step, which is the evaluation of the results.

Research and Development of Local Curriculum

Research and development are the important components in the educational development because the development of teaching and learning program requires continuous development. This continuity will lead to the implementation of the teaching and learning program with the most efficiency starting from evaluating the created program's fulfillment of the objectives up to evaluating the teaching strategies and media utilized. The implementation of the program by its builder needs to be tested with a small group of samples in a controlled environment. This kind of experiment is set to be very close to the real situation in which the program is applied and tried repeatedly until the constructed program is ready to implementation in real

situation. After that there is the evaluation to summarize the whole results of the program's media and processes, which are going to be used again. In order to prevent biases in this research, other relevant people such as the independent evaluators will also be included beside the researcher and the developer of the program. The evaluators will evaluate the program under the same conditions and situation that have been happening until the completion of the development. This kind of evaluation is likely to be efficiently applied according to the identified basic criteria (Borg, Gall and Gall, 1993: 362-363).

Research and development has a series of important steps composed of Step 1 or the step of experimentation on individual samples. This Step applies the invented program into a one by one test with a group of learners (3 to 5 people). Step 2 or the step of experimentation or test with a small group of 5 to 8 people tested as a group. Step 3 or the step of experimentation or test in the field situation. This is the step to implement the invented program onto a group of 40 to 200 learners by testing the program to use in the real situation. The implementation in this Step 3 is important because it will check the possible flaws or weaknesses of the program implementation in real situation and show ways to improvement. Besides, this Step also tests the created invention in term of the achievement of the set quality standard. If the quality of the results fails to reach the settled criteria, improvement is still needed until the program reaches the identified quality standard in acceptable levels (Thanee Somboonburana and Wirot Sanrattana, 1989: 59-84).

For the sample of the construction and development of a local curriculum along with a research process, a study of Chalong Khumueang et al. (2003) implemented the action research to develop a local curriculum on conservation of a community natural forest in form of "educational park" guided by the local wisdom. The study shows that the successful preservation of natural forest relies on the strength of the organizations in the communities. However, the creation of a local curriculum still shows a lack of attention to the community's potentials and of cooperation between the communities and the schools. This obstacle retards the development of true local curriculum and thus the curriculum does not arise from the members of the local communities who identify the curriculum structure.

Moreover, Narongsak Srivilai (2000) developed a local curriculum on Karen Cloth Weaving Subject for the Lower Secondary Classrooms at Mae Tuen Wittayakom School, Omkoi District, Chiang Mai Province. This study's findings show that the development of local curriculum is composed of drafting the curriculum and studying the aspects identified in the curriculum such as the arrangement of the occupational curriculum and the needs to conserve the Karen-style woven clothes. The design of the curriculum is an integrated model between the curriculum that shows certain levels of efficiency and the curriculum that adheres to the social roles as its base. For this reason, the draft of the curriculum produced by this current research is checked by the experts. Aside from the application of the curriculum there is the cooperation with relevant people, preparation of necessary equipment, and publication of the results of the curriculum implementation. Then the researcher sets the learning activities arrangement in which the local trainers teach alongside the teachers and participate in the evaluation of the results of the teachers' and learners' achievements. These local trainers also join the evaluation of the learning achievement on Cognitive Domain, Psychomotor Domain and Affective Domain, as well as the opinions of the

leaders of the communities, the parents, the teachers and the learners. The evaluation of the curriculum implementation reveals that the majority of the students reach the learning achievement in “good” level. The parents’ opinions toward the changes of the learners lead to the general picture of satisfaction in “high” level. The opinions of the community leaders about the results of the implementation of the course of Karen-style woven clothes agree that the working results of the learners are appropriate to the curriculum implementation. The opinion of the teachers about the appropriateness of the development of the subject of Karen-style woven clothes supports the appropriateness of the model and details of the curriculum as well as its learning objectives, contents, arranged activities, and evaluation methods. This appropriateness also includes the use of the curriculum on activities arrangement and cooperation with the reliable local trainers. Piyaporn Chumchan (2003) also implements a similar study entitled the Process of Community Participatory Action Research for Developing Local Curriculum on *Kok Mat Weaving* at Nanangpattanasuksa School, Phon Pisai District, Nong Khai Province. This study’s results show that all steps of the research process allow the relevant people to participate in the development of such local curriculum.

The study on the related documents with the research on the curriculum development above than can summarize that the research process and the development of local curriculum have important elements to implement, which are the created understanding among the relevant people, a well-prepared local curriculum, and the use the participatory process in its implementation from the preparation of the local curriculum, the implementation, and the evaluation.

The Constructionism Theory Learning Process

The Constructionism Theory has been developed by Professor Dr.Seymour Papert from the MIT Media Lab (Massachusetts Institute of Technology : Media Laboratory). This theory mentions about its continuity from the development of the theory of constructivism asserted by Jean Piaget. The contents of constructivism theory, for which the researcher has been trained on its application by Prof. Dr. Seymour Papert and his team directly, would be presented beginning from the synthesis methods (from direct training experience of the researcher) until the study results of Suchin Petcharak (2001: 15–30) and Eakchai Panmen et al. (2001: 75) with the following details.

In the constructionism theory learning process, the learners must create the knowledge by themselves through exploration, experiment, learning by doing, and doing from the learning. During the learning process the learners will also re-create and re-adjust their thoughts and working methods from time to time. The learners would try the invention they have created into practice and trials to improve the learners’ knowledge about the relevant topics or issues. Then they repeat the process and review the results of action with the fresh insights about the results of the repeated trials. If they gain new information they should adjust and reform the existing knowledge in their brains in a circular intellectual endeavor between the thoughts and actions in the cycles that support the development of one another. This process is similar to the relationship of body and mind according to the well-known Buddhism tenet. This process constructs the knowledge from real experience through which the learners learn form several methods by themselves. It is the kind of learning

that can be learned quickly with the maximum level of learning potentials of the learners.

The important components that promote the learning process are the media or equipment to create good knowledge appropriate to the learning along with the proper environment or learning climate. The teachers will act as the facilitators who encourage, support, stimulate and provide assistance to the learners to be able to learn in friendly milieu. There is the exchange of learning results among the learners in various ways among themselves. This process creates more knowledge as the gains from the experience are exchanged among the learners. During the learning the teachers would stimulate and encourage the learners to seek for the answers on their own attempts more than just providing ready-made answers throughout the learning sessions. The plan should be made and experimented into trials, the learning results recorded. The learning results are formed into concrete forms, exchanged among the learners through the presentation of the work results. The knowledge is thus shared, exchanged, and discussed in a friendly atmosphere. This will lead to the learning processes in which the gained lessons can always be brought back to test continuously in circles. The evaluation will be emphasized on the various real conditions by giving importance to the evaluation about the learning process in real condition more than just an evaluation on the end results of the process. The true value of learning lies on the learning process skills that the learners have been building continuously more than the results of the learning appearing in each step.

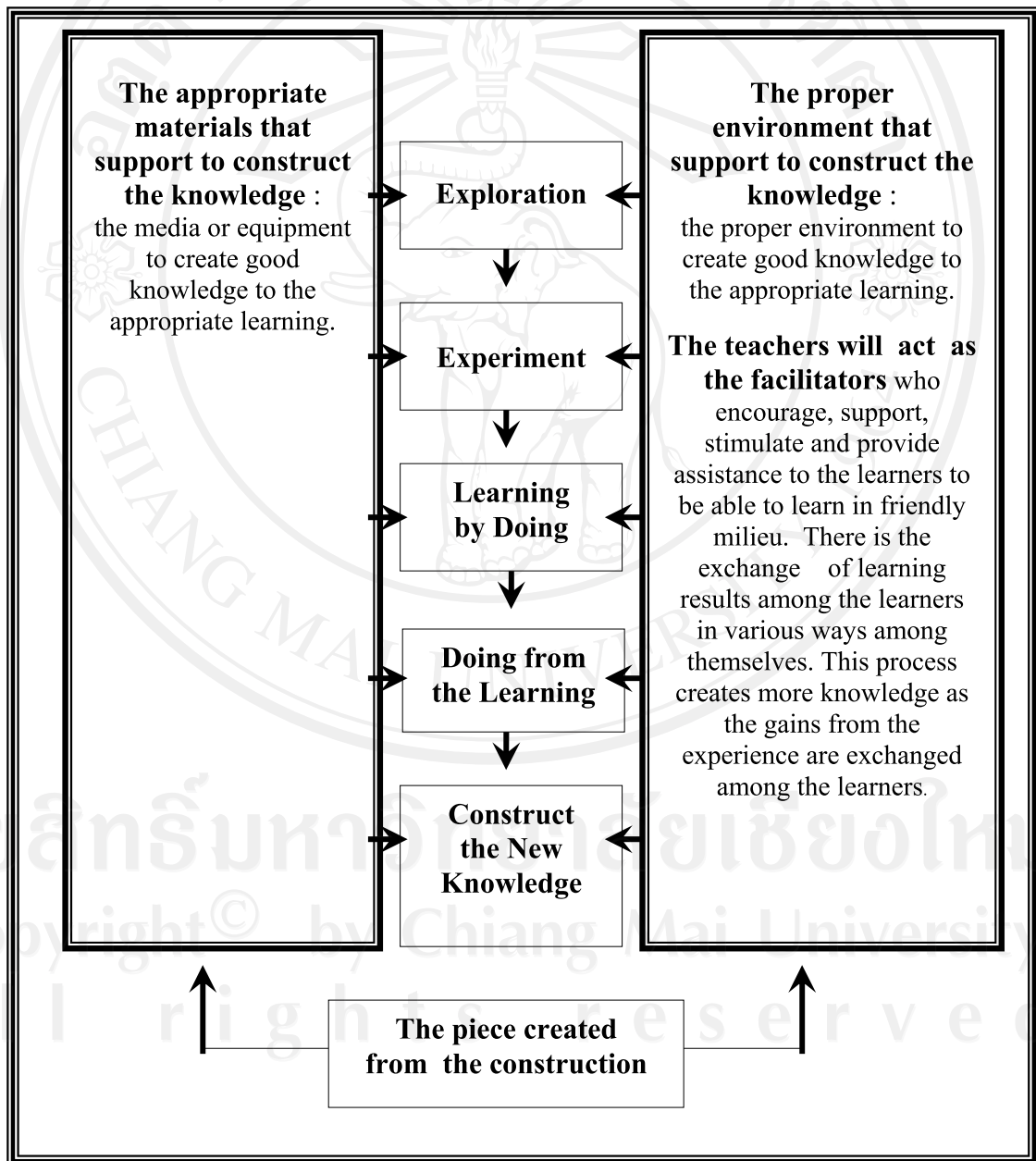
The implementation practices by using the constructionism theory learning process in Thailand prove that the process of the implementation along this theory can develop educational personnel through each part of the working starting from the production of plan together to the implementation. Afterward the participants exchange the implementation results, share opinion among themselves to crystallize the consideration for improvement, and apply the lessons for future better work. There is the development of the thoughts and opinions systematically. There is also self-evaluation including listening to others' opinions. Such processes create the extension of the work into perpetual relationships and linkages built up from the creation of knowledge and the work (Eakchai Panmen et al., 2001: 77). This is consistent with the summarized findings of Jirachai Booranariththawee et al. (1999: 1-8) who concluded that such process according to the theory could be used to develop the learners' potentials through its application on the subjects related to cultures and local handicrafts. In addition, the inconvenient learning using the new technology for the learners belonging to the hill tribes not familiar with the computer technology can be compensated with the use of local, efficient tools and media that have compatibility with the relaxed learning climate. It is clear that this method can stimulate the learning of the learners to be able to learn together with awareness.

In addition, Eakchai Panmen et al. (2001: 40) applied the model of learning according to constructionism theory on the thinking of the project that can be used for learning in the real situation by the learners themselves. The project is based on the technical knowledge, technology and society. And then the results are presented in an exchange of experience among friends, teachers, and relevant people who will lead to improvement of the project work and the learning according to real situation.

Such statements above imply that the constructionism theory learning process has some important steps that expose the learners to surveys for the interests they

want to learn by themselves, to experiment or try the action, and to utilize the learned experience from their past action into a guideline for further action related. During that time this process would create the continual building of knowledge accumulated in the learners. It is the learning that exposes the learners to learn of their own full potentials by using the appropriate media and learning climate. The teachers would act as the learning facilitators who stimulate and support the learners to learn with their own potentials. That the researcher can present in Figure 1 as the followings.

Figure 1 The Learning Process of Constructionism Theory



From Figure 1, it presents the Learning Process of Constructionism Theory

that start by exploration and follow by experiment, learning by doing, doing from the learning and continue to construct the knowledge and create the piece for learning by sharing, exchanging, and discussing in a friendly atmosphere. Which the teachers will act as the facilitators who encourage, support, stimulate and provide assistance to the learners to be able to learn in friendly milieu.

Besides that the process, Jirachai Booranariththawee (2003) integrated the constructionism theory learning process with the participatory action research to develop the abilities in research among the voluntary teachers in the Mae Fah Luang Subdistrict Non-formal Education Centre, Chiang Rai Province. The integration results show that such process can be used to develop satisfactorily the abilities in research and development among the voluntary teachers at the Mae Fah Luang Subdistrict Non-formal Education Centre, Chiang Rai Province. The integration can greatly enhance the abilities and performance of the voluntary teachers in the Mae Fah Luang Subdistrict Non-formal Education Centre in their tasks in the local communities. Besides, this integration can increase the positive attitudes among the teachers toward doing research.

It is clear that the constructionism theory learning process is highly compatible with the participatory action research to develop the community teachers' abilities in research and development of local curriculum. Such attempts have aims and concepts consistent with one another, which are the belief in the personnel potentials that they can learn and develop themselves together given the right learning climate. This belief leads to solutions and development attempts to create new knowledge. The researcher studies the review of literature related to the participatory action research that leads to its integration with the constructionism theory learning process. This integration can be presented as what follows.

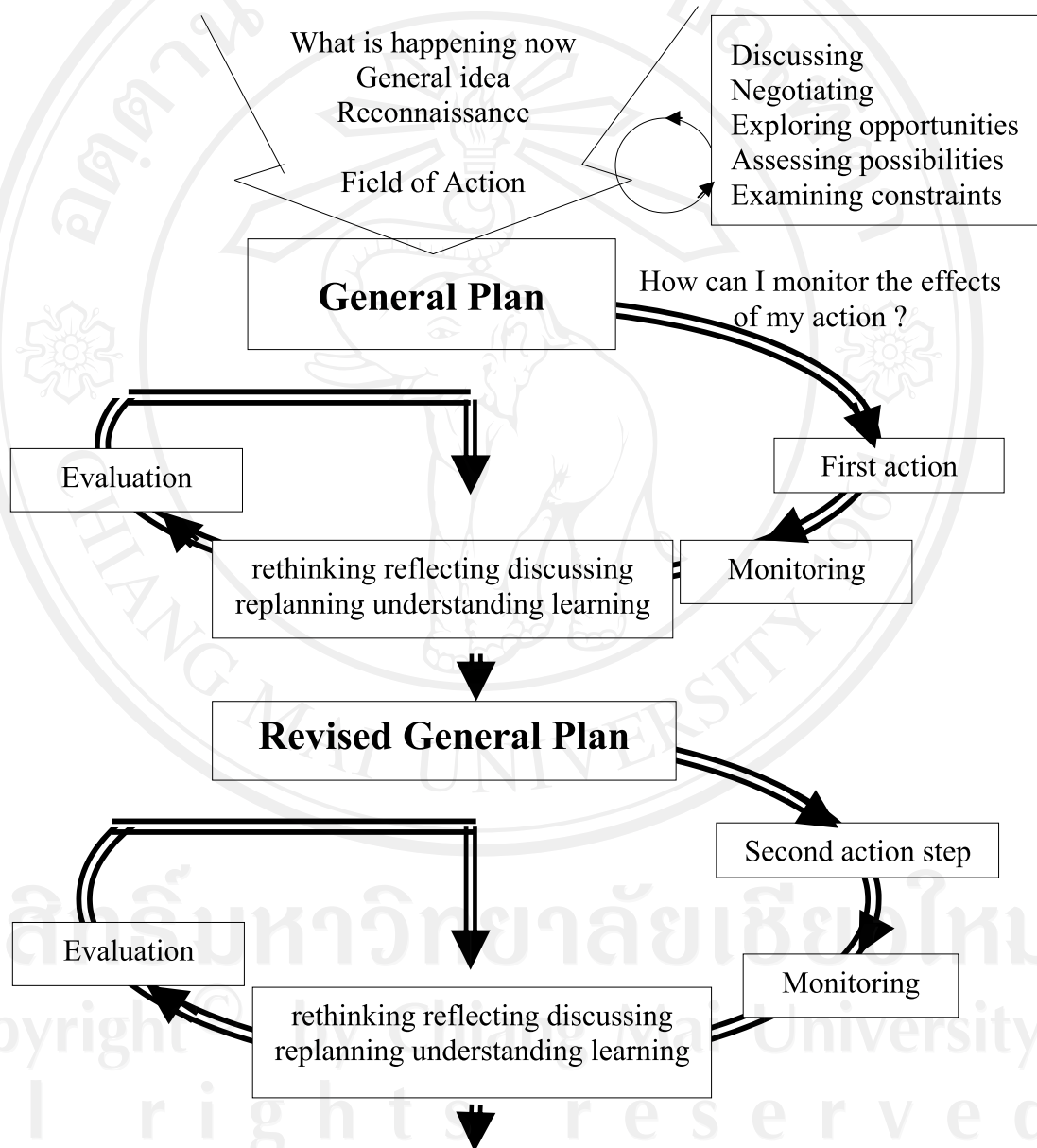
Participatory Action Research

Participatory Action Research is a continuous development from the Action Research through John Dewey who initiated the use of the scientific processes to study the social problems. However in later time John Dewey was not the one who gained the credit for such theoretical development. The persons who defined the Action Research later were John Collier and Kurt Lewin (Pasmore cited in Reason & Bradbury, 2001: 38).

Action Research is the research that the teachers launch by themselves in order to gather beneficial knowledge for their works. It is the search for practical truth. The teachers are becoming the researchers. There are four steps related with Action Research, which are the defining of boundaries of the topic of interest to study, the data gathering, the analyses and interpretation of the data, and the development of implementation plan by using the Qualitative Method to understand the findings (Mills, 2000: 5-10) In practicing the Action Research, the practitioners need to create the relationship between the researchers and the relevant people. The creating of this relationship should cover the feeling of equalities among all relevant people, integration of common purposes, avoidance of conflict as much as possible, transparency in conflict and problem solution, interpersonal communication and acceptance of individual preferences, the use of Cooperative Relationship more than just the personal relationship, and the use of competition or power relationship (Stringer, 1996: 26). In order to demonstrate the clear concept of action research

process, the study should be done in the Action Research Cyclical diagram of Lewin, which has been created a well-known representation of action research “spiral” by Stephen Kemmis (Mills, 2001: 17) that the researcher presents in Figure 2 as the followings.

Figure 2 The Action Research Cyclical diagram of Lewin



From Figure 2, it is clear that the cycle of action research starts with surveys of the problems and boundaries of implementation that would lead to the identification of general plan, action step, monitoring, rethinking, reflecting, discussing, replanning, understanding, and learning before evaluation with the review of opinion, adjustment of the plan, and the attempts to understand, create and apply the learning to improve the plan for re-implementation. This process takes forms in a set of continuous cycles.

For better clarification on action research, Walton and Gaffney (1991: 123) compared the strong points of the Cycle of Action with the strong points of Research Cycle according to the steps of research as the followings.

Step 1: Cycle of Action defines the problems to approach the possible solutions according to the factors, conditions and the possible opportunities in the relaxed or facilitating learning environment. Research Cycle provides the definitions of topics for study and prepares the review of literature.

Step 2: Cycle of Action emphasizes on the objectives to intercept changes and to produce the implementation plan. Research Cycle implements and identifies the assumptions.

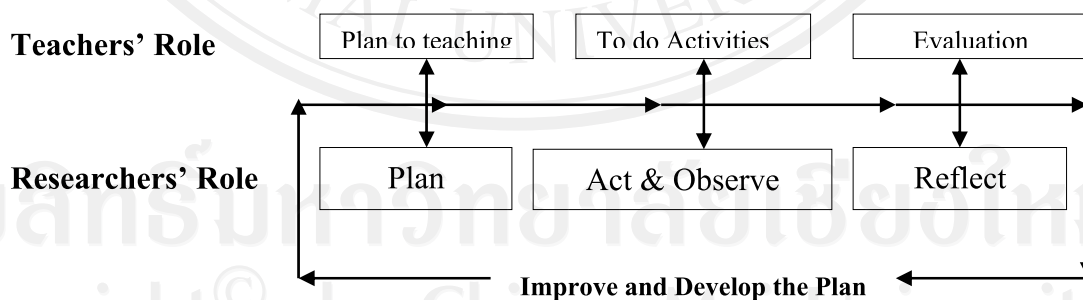
Step 3: Cycle of Action aims first for changes in the target area. Research Cycle will select the sample groups as targets of experimentation and observation.

Step 4: Cycle of Action aims for changes and improvements. Research Cycle aims to select the methodology, data collection and study references.

Step 5: Cycle of Action aims to study in depth to arrange the creation and the distribution of the changes. Research Cycle aims to seek for assumptions for distribution and improvement of the theories and practices.

From the presentation above, it is clear that all the steps of implementation have important objectives, which are solving the noted problems and improving the development processes. For this research the aim is to seek for facts according to the known theories and assumptions. When the research leads to action research process, the steps of seeking for the facts will be implemented along with the attempts for problem-solving.

Kittiporn Punyapinyophol (2006: 43-50) presents a model to apply for the cycle of action research according to the cycle called PAOR (Plan, Act, Observe and Reflect). This cycle functions in the teachers' roles alongside their roles as the researchers. It can be presented as the followings.



Therefore during the implementation of the classroom research along with the teaching and learning arrangement, the teachers should always keep in mind that any research should not disturb or distract the teaching and learning process, which are their basic responsibility. The teachers should select the correct techniques of data gathering that require proper use of time, the methods to which the researchers are comfortable, and the research methods suitable to the small classroom research. The problems of research should be the parts of the solutions on the existing teaching and learning in the teachers' own classes. Besides, the teachers should observe the ethics to protect personal information and respect the personal rights of the samples in the

classroom research. The teachers must be consistent and reliable because they are the ones who work closely to the classroom and will be the ones who decide on the important situation. They are preferably capable in predicting what is going to happen in the classroom by considering what should be the best implementation to the teaching and learning arrangement wherever they are in charge. Most importantly the teachers can excavate their own potentials fully, which are the important guidelines for the general educational reforms. They necessarily must implement this regiment regularly and persistently.

The participatory action research is a method to learn from experience from the relevant people based on their committed participation within all parts of the research activities starting from the identification, implementation, re-evaluation, until evaluation. Normally the action research means the process through which the researcher selects one of the activities as the good activity and appropriate to the knowledge and understanding of the researcher to experiment to find out its availability. Such action research is flexible and can be adjusted according to the conditional data where the researcher gets further additional information. This process displays the model's flexibility. The model may use either the participatory or non-participation implementation methods. In case the participatory action research is opted, the information from the research in all steps is distributed to the relevant people who will make use of the information. If these relevant people are the members of the local communities, they will be the ones to identify the problems of the communities, to strive for solutions, and to pay full attention to solve the problems. The research process will be implemented through the exchange of opinions among the villagers, the method developers and the researcher. After using the participatory action research process, the researcher, developers, and villagers would set up common linkage and shared cooperation points to solve the problems (Supang Chantavanich, 1997: 67-72).

The process of participatory action research is the cooperative working process relying on investigation to seek for problems, to analyze their possible solutions, to discuss the variegation of the problems, and to produce the guidelines to solve the problem. This is the trend along the democratic ways of problem-solving (Kamol Soodprasert, 1997: 9).

The participatory action research has a taut relationship directly with the cooperative process. Therefore the researcher studies and analyzes the concepts and the principles of participatory action research in order to see the guidelines for the participatory process clearer as the followings.

Participation creates benefits in the implementation in several ways, such as in producing the efficiency and competence in the implementation, guiding the consistent behaviors of the concerned persons to the objectives of the organization, and reducing the potential for conflict between individuals and organizations. Participation creates a mechanism for a team work as well as motivation and responses according to the psychological needs as discussed in the theory of Maslow (Thammaros Chotigunjara, 1993: 228-230).

The principles of participation have five important principles, which are (1) reliance of working with the members' previous experience, (2) creation of learning experience and the challenges for updated opinions, (3) interaction among members and between members and trainers, (4) extension of existing opinions and

communication methods, and (5) recording of information to exchange, analyze and synthesize the incoming thoughts (Taveesak Nopkesorn, 1998: 27). The levels of people participation in the development, for example, can be classified into five levels. The first level is marked by the participation in the seeking for problems. The second level appears when the participation is done to search for the causes of the problems. The third level is earmarked by the participation to find the guidelines and the solutions and methods. The fourth level is reached when people participate in implementing the proposed solutions for the problems. And the fifth level arises when people participate in the evaluation of the implementation (Akin Rabibhadana cited in Pirome Chongkumarng, 2002: 13). For the strategy to stimulate the participation, the researcher can use the methods to think of the problems and issues in the group together near the sites of problems and to prepare the guidelines of the path of development. These methods are not too difficult to apply as they are concerning the people's joining in thinking and solving the problems by considering the priority of the activity from the simple ones to the difficult ones. These methods create the relaxed climate that facilitates the exchanging of opinions and listening to opinion by mutual motivating and reinforcing. Many techniques can be used to induce participation such as the meeting techniques called A-I-C (Appreciation– Influence-Control), which is started from creation of shared knowledge and awareness about the problems that lead to the steps to create the guidelines for the development and the steps to control the division of the implementation. The meeting technique of Action Research Meeting is seeking for common future together and the so-called Future Search Conference is the gathering to consider the past condition, current conditions and the imagination about the desired future by the participants. These techniques lead to the implementation planning together. The build up of the cycles of participation starts from the first step, which is the step of thinking process to seek for problems, consider and seek for their sources, and arrange the priority for the problems. Step 2 is the process of decision making and Step 3 is the implementation process and the last step is related to the processes to settle for the responsibility for each process (Office for Standards in Education, Office of Rajabhat Institutes Council, 2002: 119-137).

The concepts and principles of participation as presented above conclude that participation is an important strategy for the efficient and competent teaching and learning implementation. Participation creates the ongoing and shared learning processes. There are many available techniques to induce participation but the important steps are the participation in thinking, in planning, in implementing and in monitoring and evaluating for the teaching and learning programs.

Related to the implementation of action research, Kittiporn Punyapinyophol (1997: 47-52) studied the model of classroom action research methods applied in the mathematics study among some Prathom Suksa teachers. This research findings show that the big cycle of the classroom-based action research is composed of the steps of Preplan, Plan, Act and Observe (step of implementation of teaching and learning alongside the research process), and Review and Evaluate Cycle, also known as the step of Reflect (step to review and evaluate the cycles for plan adjustment). However many sets of sub-cycles overlap within the steps of the teachers' implementing of the teaching and learning alongside the research. Each set of sub-cycle is composed of the steps of the planning, the implementation of the teaching and learning side by side

with the research process, and the review and evaluation of the cycles to adjust the plan. The first set of sub-cycles has the planning to measure the basic knowledge (Plan) and to consider the problems from the evaluation (Act and Observe). The results of measurement of the basic knowledge (Reflect) and the consideration of the problems the second sub-cycle of the five plans can be used to adjust the basic plan and to reconsider the results from the adjustment of the basic plan. The third sub-cycle, which is the production of the teaching plan for the newly adjusted contents, is composed of teaching the new learning contents, measuring the knowledge of the new contents, recording the students' performance, measuring the knowledge of the new contents, supplementing with extra teaching, and criticizing the teaching and learning methods. Whenever a lesson is not finished, the teachers would teach these unfinished contents in the next contents by coming back to the second sub-cycle or the third sub-cycle depending on the cases. This repeated process is done until no more adjustment of the basic or returning back to the unfinished lessons, and until the contents are completed. The evaluation test in each lesson is undertaken after the class and the students are asked to answer the questions. Afterward the teachers prepare small sub-tests and teach the supplementary course after the end of each lesson. All these processes are done before the implementation of the step of review and evaluation of the cycle to adjust the plan for the following steps. Kruawan Khanthong (2003) utilized the classroom action research for developing Thai language reading comprehension of Prathom Suksa 4 Hmong students at Ban Rom Klao 3 School, Tak Province. The findings suggested that the students have shown better understanding in the reading of the Thai texts, positive attitude toward learning the Thai language, and appropriate behavior in learning the Thai language. In addition, the teachers of the Thai language improved their performance in teaching the Thai language more appropriately.

Similarly, Supat Meesakun (2003) applied the action research process into process for developing teachers' potential in conducting classroom action research at Klonglanwittaya School, Kamphaeng Phet Province. The findings reveal that such process can be used for developing the teachers' potentials in doing the classroom-based research. Eight teachers out of 11 can write classroom research reports with the quality standing in a "good" level while the other three are showing the report quality in a "moderate" level.

Besides bringing the action research process to use in solving the problems in the research implementation, it is also possible to utilize the participatory action research process in developing personnel who sell medicines called Nostrum (non-toxic drugs or specially controlled drugs) in Lamphun and Chiang Mai Province (Anurak Panyanuwat et al., 1999). The findings of Anurak Panyanuwat et al. (1999) study show that the personnel who have passed the process of the participatory action research create positive changes on their knowledge, abilities to perform, attitudes, and experience. Besides, there is a wider acceptance among the members of the governmental staff and the committee members of the pharmacist clubs. Such findings are correlated with the principle of participatory action research as stated above that after using the process according to the guideline of the participatory action research the relevant people make connection and cooperation in solving common problems. At the same time they bring the participatory action research to use in developing the potential of the elderly group in the rural areas of the Northern

Region of Thailand (Pirome Chongkumarnng, 2002). The steps start from the analysis of the problems of the elderly club followed by the implementation plan, the actual implementation according to the plan, and followed by the evaluation to produce summary of the lessons. The findings show that the participatory action research plays an important role to increase awareness of all sectors for thinking process, systematical work, and creation of experience. It is clear that the elderly have potentials to perform their own activities. The model of participatory action research is also suitable to use in creating discipline among the students in Long Wittaya School, Phrae Province. There are four main steps, which are the step to create the awareness about the problems and study them, the step to prepare the plan to solve the problems, the step to implement the solutions of the problems, and the step to evaluate and summarize the research results. The research shows that the participatory model is an efficient model that can muster the participation of the teachers and the students. It also allows the free flow of information for making implementation plan until the whole plan can be brought into fruition (Chaiwoot Kompradit, 1996).

Besides, Wichai Booranariththawee (1990) studied the behavior of the leaders in developing the local communities using a research in which the researcher also took roles as the coordinator to work in the communities and participate in solving and developing the work together with the students, villagers and the community leaders and other relevant organizations. It is the qualitative research method that guides the concept of participatory action research. The findings show that one of the important behaviors of successful leaders in development is opening the chances for every member to participate in thinking and implementing in any endeavor. The most important results of this research are not only the gathered fact that the findings reflect the research's conceptual framework but also the occurrence of the development in learning and among relevant people. Similarly Piyaporn Chumchan (2003) replicated the process of community participatory action research for developing local curriculum on *Kok* mat weaving at Nanangpattanasuksa School, Phon Pisai District, Nong Khai Province. The findings show that all steps of the research process can gather the relevant people from all sectors to participate in local curriculum development on such issue. Jirachai Booranariththawee (2003) applies the process of participatory action research integrated with the constructionism theory to develop the research abilities among the voluntary teachers from Mae Fah Luang Subdistrict Non-formal Education Centre, Chiang Rai Province. The findings show that such study can develop the community teachers' abilities in research with a high level of development.

From the studies of the review of literature about the concept and the process of action research and the participatory action research as presented above it can be deduced that the participatory action research has a thinking base from the action research and relies on the participation of the relevant people. Participatory action research affects the participants in terms of the development of their abilities in work performance, attitudes, experience and coordination related to the activities implemented with the others. The participatory action research can develop the work along with their parts relevant to the activities implemented with others and can develop the tasks while the research is undertaken. The procedures for the participatory action research can be summarized as the followings.

Step 1 The participants study the condition and problems to identify the boundaries and guidelines for possible solutions according the real conditions together between the researcher and relevant people who are parts in such problems.

Step 2 The participants prepare the implementation plan together following the guidelines derived from Step 1.

Step 3 The participants bring the implementation plan in Step 2 into actual implementation.

Step 4 The participants monitor, evaluate and discuss the reflective results along with reviewing the new insights about the plan, adjusting the plan and continuously developing it.

The implementation procedures in form of Step 1 to Step 4 will have similar implementation as the implementation cycles. This means that after getting the information from Step 4 in the previous cycle, the researcher applies the information as a guideline for revision and development of the implementation plan and its execution in the next cycles.

The study about the learning process according to the constructionism theory and participatory action research reveals that both can be integrated to develop the teachers' abilities in doing research and development of local curriculum in the following steps.

Step 1 The participants study the conditions or survey the problems to identify the boundaries and guidelines to solve the problems according to the real situation in the real context of the local communities. The researcher and the relevant people who take parts in the problem attempt to construct a local curriculum together by creating a learning climate and selecting the tools that facilitate the learning together in adherence to the constructionism theory.

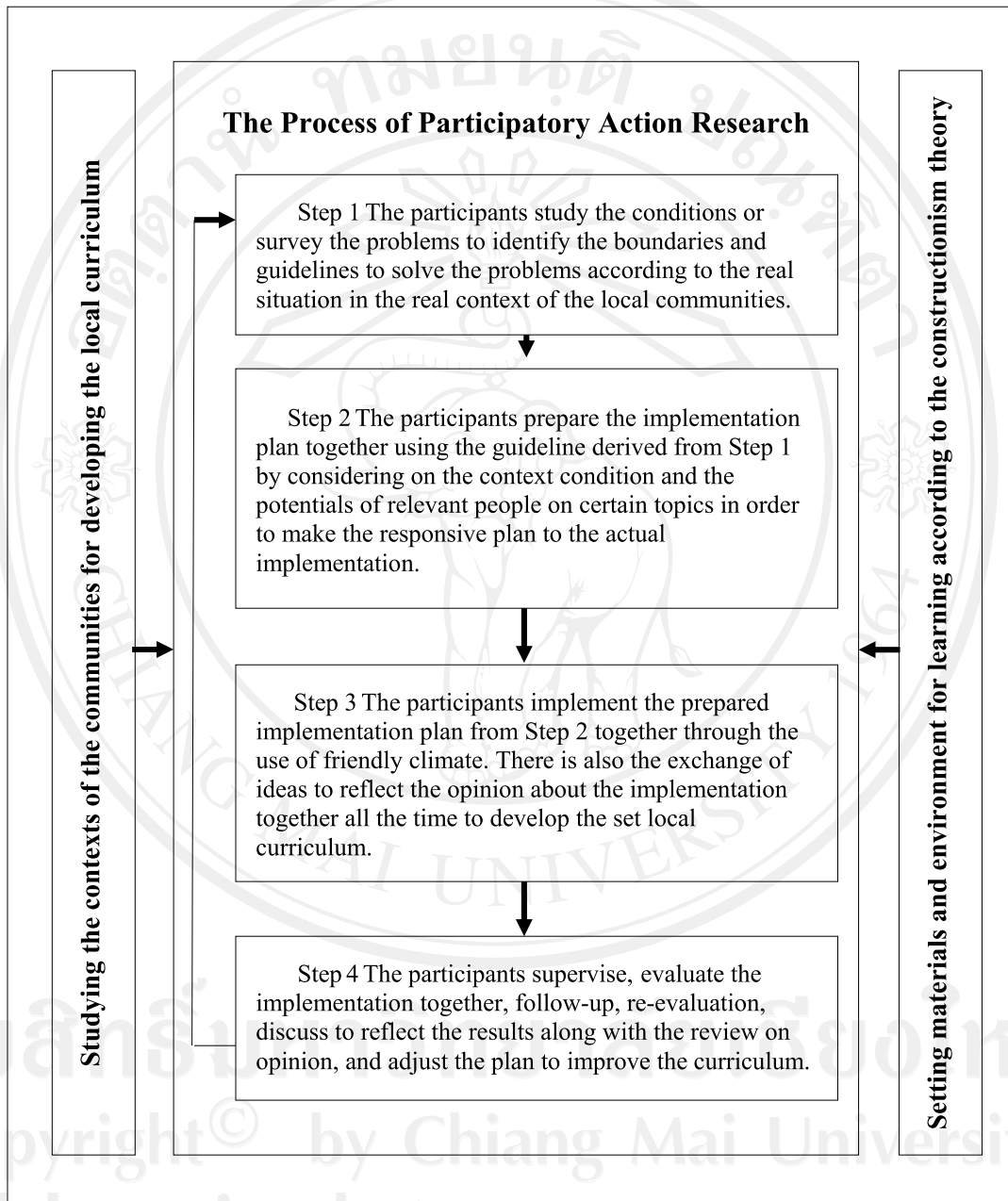
Step 2 The participants prepare the implementation plan together using the guideline derived from Step 1 by considering on the context condition and the potentials of relevant people on certain topics in order to make the responsive plan to the actual implementation. This is accomplished by the relevant people participating into the construction of a local curriculum.

Step 3 The participants implement the prepared implementation plan from Step 2 together through the use of friendly climate. There is also the exchange of ideas to reflect the opinion about the implementation together all the time to develop the set local curriculum. For the community teachers in the local communities, the implementation of research and development of local curriculum is undertaken to follow the plan for research and the development of local curriculum that the teachers in the communities have made.

Step 4 The participants supervising, evaluate the implementation together, follow-up, re-evaluation, discuss to reflect the results along with the review on opinion, and adjust the plan to improve the curriculum within the relaxed environment that emphasizes on being helpful to promote the potential of all participants according to the constructionism theory.

From the concept above, it can be drawn as in the Figure 3 (next page) as the followings.

Figure 3 The Diagram of the Process of the Developing Abilities in Research and Development of Local Curriculum through the Constructionism Theory Learning Process Integrated with the Participatory Action Research



The integration of the constructionism theory learning process with the participatory action research is accomplished to develop the community teachers' abilities in research and development of local curriculum. The main issue for consideration is the guideline for the evaluation of the community teachers' abilities in research and development of local curriculum. This issue can be presented in what follows.

The Evaluation of Community Teachers' Abilities in Research and Development of Local Curriculum

This research aims to develop the community teachers' abilities in research and development of local curriculum in response to the real context where these teachers perform their tasks. Certain important issues necessitate that the community teachers are required to have proper abilities in research and development of the local curriculum, which the participatory action research can presumably build through this research.

For the evaluation for the levels of abilities in research and development of local curriculum in this participatory action research, this study follows Jirachai Booranariththithawee's (2003) application of the Authentic Assessment Process by using the evaluation criteria (Rubric) done in the participatory among the relevant people. This Rubric starts from the participatory survey for the necessary contents required for ability development, the arrangement of the order of the contents that must be developed, the identification of the criteria for the evaluation of the abilities in research and development of local curriculum for each content, and the identification of the agreement in the development and evaluation of the results. In the evaluation, there is the checking of the trace of evidence shown before and after the development attempt in order to compare and measure the occurring improvement. The tracing of the development plan implementation will be done with certain methods such as (1) the record of the working condition of the community teachers related with the issues of action research process, (2) the participatory action research to apply in problem-solving, (3) the drafted research plan for the voluntary teachers, (4) portfolios in the research and the development the work by applying the research methodology, and (5) the presentation the research reports by the community teachers in non-formal education.

To evaluate the community teachers' abilities in research and development of local curriculum, the researcher considers the evaluation methods that are feasible with the nature of the aspects to be evaluated. Some of these methods are the authentic assessment method and the evaluation methods for the abilities in research and development of local curriculum as stated previously. Moreover, the contents or issues that will be evaluated are consistently set according to the guidelines to develop local curriculum as presented earlier.

To sum up, the feasible evaluation method for the community teachers' abilities in research and development of local curriculum is the authentic assessment method. The researcher studies and presents the details of the authentic assessment as the followings.

At present, the Authentic Assessment is widely accepted as the guideline for the evaluation methods that cover larger areas than the conventional methods. It is accomplished through the evaluation of the finished tasks or the real results of work more than just evaluating the test results. The additional evaluation method, which is using the Rubric, measures the correlation of the finished tasks with the real life of the samples. This evaluation method covers the oral presentations, the debates, the exhibition of end products, the collection of the learners' works, the audio visual or still pictures to record activities, the problem-solving or the work results that show the samples' capacity for investigation, the observation of the samples, the survey of implementation and the implementation of group work. This evaluation method

emphasizes the expressions in the practice, the learning processes, the production of evidence and portfolios, and it opens the chance for learners to participate in the evaluation of their own potentials to fulfill their own demands. It is the method that facilitates the development of learning of the learners. The authentic assessment relies on the principle that the learners must perform the real action or express their capabilities to materialize the learned skills. It stimulates the learners to express and perform in practice by integrating the knowledge they have to finish their tasks. This assessment allows the learners to learn or work in more complicated way. It can integrate the varieties of learning processes together and lead to the knowledge application in the real life as well as in problem-solving and in field works. This assessment builds a logical thinking to answers the questions. The important tool in the authentic assessment is the “Rubric,” which is used for the evaluation of the process, the production of evidence, and the practical results or performance (Somsak Phuvipadawat, 2001: 91-182).

The authentic assessment method by using the portfolios has important consideration, which is its sensitivity to the many aspects of intelligence of the learners. The learners can develop their intelligence based on their own interest continuously by selecting the endeavor of their own choice and interpreting the evaluation results creatively. This process leads the learners to notice their strong and weak points and guides them to solve their problems and then develop themselves. The creative thinking of the learners is stimulated as well with this method. The learners are thus satisfied with their own tasks and performance (Chai-Anan Samudavanija, 1998: 5-7). In this case, there are some studies on the use of portfolios to evaluate the learning abilities in mathematics subjects among Prathom Suksa 6 students. The findings show that the students have positive attitude toward the evaluation method by using the portfolios. In addition, it encourages the students to be more responsible, and it can satisfy the learners as well as the relevant people (Rangsan Kraisanont, 2000).

From the provided details about the authentic assessment, many important issues can be applied in the evaluation of abilities in research and development of local curriculum among the community teachers in non-formal education centre. For example, the evaluation methods by using the portfolios and the construction and development of the criteria for authentic assessment by using the Rubric (also for the evaluation of performance of the tasks) allow the learners to participate in the authentic assessment from the identification of the criteria until the evaluation by using those criteria. These methods serve as the guidelines to evaluate the community teachers' abilities in research and development of local curriculum.

The evaluation methods used in this research are about measuring the community teachers' abilities in research and development of local curriculum. There are three relevant issues, which are (1) the evaluation of the research plan, (2) the evaluation of the research implementation, and (3) the evaluation of the local curriculum development. The details will be presented as the followings.

Related to the evaluation of the research plan D. A. McKay (1981) cited in Direk Pornsima, 1998: 279-291) presented the criteria for evaluating the components of the research plan as the followings.

For the components of the research theme, the criteria to consider are the clarity of the theme, the clarity of the objectives, the consistency of the objectives

with the research assumptions, the conciseness of the theme, as well as its level of interest and simplicity. The preparation for the main components of the research has some criteria to consider, namely, the clarity of the concepts, the identification of necessary aspects, the self-reliance of the research, the directness to sources of the problems, the study impact on the development of knowledge, and the research's applicability.

For the components of the research problems, the criteria to consider are the conceptual framework, the points of interest, the control of the research model, the control of information, the consistency of the research problems with the research theme, the management of the report of research findings, the readiness for checking mechanism, the relationship with theories, and the clarity of the sub-problems in the research.

For the components of the model of research, the criteria to consider are the clarity of the data, the readiness of the data gathering, the compatibility of the data, the reliability and validity of the data, the random sampling technique, the selection of the samples groups, the selection of the right data, the timeliness of data, the clarity of the methods, the reliability and validity of the tools, the chance in selection of the statistical procedures, the completeness of the data, the generalization of the findings to the larger population.

For the components of the review of literature, the criteria to consider are the appropriateness of the introduction, the criteria to select related literature, the whole picture of the history, the consistency with the present theories, the quality of related literature, the consistency of the research with the related literature, the feasibility of the research methods, the consistency with the presented research, the simplicity in reading, the concrete contents, and the arrangement of the topics appropriately with the conclusions.

For the components of the definitions and boundaries of the research, the criteria to consider are the meanings or definitions of the terms, the number of terms, the clarification for the research theme, the awareness of the limitations in selection of the samples, the identification about the limitation in time, and the identification of the research model.

For the components of the time set for this research, the criteria to consider are the chronological order of events appropriately to the allocation of time for each activity, the proper identification of the time for reporting the results, the reasonable allocation of time for the researcher, the ability to adjust the time to the situation, and the other components on general condition of the research plan.

For the components of the general condition of the research plan, the criteria to consider are the correctness of the forms, the readability, the quality of language used, the chronological order of topics or themes, the continuity and consistency of the contents in each part, the integrity of the topics, the preparation for footnotes (illustrations, figures), and the chronological order of the illustrations, position of figures, the clarity of the topics, the forms and style of illustration, the appendices, and the proper references (clarity of bibliography, correctness of bibliography, the right format of bibliography).

Certain components and criteria will be used in the evaluation of this research. The consideration regarding this evaluation would be undertaken together with the voluntary community teachers in non-formal education, the administrators, the

researcher, the relevant people, and the experts before the actual implementation of the evaluation. This research considers the correctness and possibility of the implementation based on the participation of the relevant people to improve and develop the components and criteria that are consistent with the real condition for further evaluation.

Related to the evaluation of the results of the research, Somwang Pitiyanuwat (1998: 293-307) presented the evaluation issues of the research implementation with the details as the followings.

The evaluation of the proposed research or the research plan begins from the consideration of the research questions whether they are valuable problems deserving to be research questions or not. The assumptions or expected answers are reviewed for its correctness according to the academic principles or practices. The design of the sampling procedures is also tested for its correctness. Also examined are the methods of variable measurement's appropriateness and the design of data analysis for consistency with the level of the data that has been measured from the variables. The proposed research project is the expression of initiative and creativeness. Could the research findings lead to the creation of knowledge and in what level? Can it be applied and how? These questions reveal the enthusiasm, eagerness to learn, and reasonability of the researcher.

The evaluation of the research implementation is divided further into three types of sub-evaluations, which are (1) the evaluation on the research plan or the research proposal, (2) the evaluation on the progress of the research, and (3) the evaluation on the research results.

The evaluation of the research plan or the evaluation of research proposal generally will be considered on three main issues. These are the research questions, the research methodology and the research administration plan. These issues can be evaluated through evaluation of good research project through the method of SMART, which comes from the words Specific, Measurable, Attainable, Reasonable, and Timeliness. The important issues for the research evaluation are the initiatives of the research plan, the clarity of the research objectives, the feasibility of the research objectives, the completeness of the review of related literature, the linkage with other researchers or institutions, the correctness of the research methodology and the research design, the values on academic development, the feasibility of research plan within the available time, the abilities of the head of the research project, the ability of the participants in the research project, the benefits derived from the research project, and the sufficiency of the budget. Each issue of the evaluation will identify the levels of evaluated achievement in "very good," "good," "rather good," "moderate," and "need improvement."

The research plan will take three functions: as the implementation plan (used in the communication among the participants), as the document that gather opinions to improve the plan, and as the contract (made with the financial donor or the approving officer of the research project).

The evaluation of the progress of the research measures the research's accomplishment whether it adheres to the research plan or not and the research's progress or stagnation. If the performance is poor compared to the plan, the evaluation probes the reasons for this failure. The evaluation also questions the availability of other solutions. For the research evaluation, the issues to consider are various because

there are a variety of standard criteria to evaluate a research. Generally the evaluation, through a series of tests, is concerned with tests' internal validity. Validity can be defined as the extent to which differences in scores reflect true differences among the tested groups or individuals. The external validity is considered from the abilities of the evaluation results to be confidently generalized to the larger population beyond the samples taken. The issues of consistency with the evaluation methods of the research plan as stated above are the correctness of the results of analysis, the correctness of interpretation of the analysis result, the appropriateness of the presented research findings, the correctness of summary, the reasonability and clarity in discussion and suggestions, and the academic values and applicability of the research.

In the evaluation of abilities in research and development of local curriculum, it should start from the survey of the conditions (preliminary survey) to arrange the earliest draft of the local curriculum, produce a draft of local curriculum, implement the local curriculum, and then evaluate the local curriculum implementation. Each step has a lot of details according to each context, and for each step the developer of the curriculum would design consistently with the real condition in the local communities where they work. The details in this part would be holistic and lead to the enhancement of the abilities in research and development of local curriculum during the implementation of the research utilizing the constructionism theory learning process integrated with the participatory action research.

The study of the documents and related literature (secondary data) about the evaluation of the abilities in research and development of local curriculum can lead to identification of the guidelines to evaluate the community teachers' abilities in research and development of local curriculum. This research would apply the evaluation process termed as the authentic assessment, which emphasizes the evaluation on the abilities in research and development, within the context of non-formal education learning centre among the community teachers serving in the communities of Northern Region. The community teachers in the Northern Regions are the population of this research from which the samples are taken. They should participate in identifying the criteria and the guidelines for the evaluation together with the researcher and the experts. If possible, they are also invited to consider the research correctness according the academic principles along with appropriateness and feasibility of the implementation set to follow the principles of authentic assessment and of the participatory action research. The other relevant people should also take part in the consideration and identification of the guidelines to work together in all steps. Having identified that the researcher and the community teachers are the target groups in this research, the study was made to prepare the evaluation criteria to evaluate the teachers' ability to launch a research and develop local curriculum.

The review of literature leads to the identification of the conceptual framework of the research in order to use for studying the model and the results of using the model in developing abilities in research and development of local curriculum of northern community teachers through the constructionism theory learning process together with the participatory action research as the followings.

Conceptual Framework of the Research

The context of the local communities where the community teachers perform their tasks is an important factor in developing a local curriculum for the community education centre. Integration of the constructionism theory learning process with participatory action research (CLIPAR) is attempted to increase the development of the teachers' abilities in research and development of local curriculum along with the community teachers by using the media and the climate settled for the learning. This integration affects such abilities in research and development among the community voluntary teachers. It produces the community teachers with capacities to launch research work and develop a locally applicable curriculum. Furthermore, the quality of the created local curriculum also satisfies the participants.

The local community context is not only composed of the concrete structures such as the natural resources but also composed of the abstract structures such as culturally related beliefs or traditions and knowledge in form of local wisdom. The constructionism theory learning process (or CL) starts from allowing the learners to survey what they want to learn, launch an experiment, learn by doing, take action following the lessons they have learned until they can create their own knowledge. The work results as guided by the facilitator are facilitating the learning through the creating of the relaxed climate and providing the learning media and the participatory action research (PAR) that emphasizes the participation process in all steps beginning from Step 1 (survey to adjust, correct or develop the plan) and leading to Step 2, which is making and performing the plan. The Step 3 or evaluation is then continued by Step 4 that leads to revision, adjustment and the implementation further into cycles.

The application of constructionism theory learning process (or CL) and the participatory action research (or PAR), or together become CLIPAR, is then brought to develop the community teachers who understand the context of the communities and the demands of the learners. This advantage enables the community teachers to plan research and development of local curriculum and create tasks of local curriculum that are consistent with the local community context and satisfy the participants of the creation of the local curriculum.

The study of the context and the evaluation before starting the development process of abilities in doing research among the community teachers (Pre-Assessment) precede the implementation of the ability development until it is completed. The evaluation is done after the process of developing the abilities in research and development of local curriculum among the community teachers (Post-Assessment) is finished.

The study on the model to develop the teachers' abilities in research and development of local curriculum among the community teachers and the study on the results of the implementation of the model are then integrated and summarized as the whole picture of this research.

The conceptual framework of the study presented above can be represented in form of a figure of the conceptual framework as shown in Figure 4 (next page).

Figure 4 The Diagram of Conceptual Framework of the Research
(See abbreviations in page xi)

