

CHAPTER 4

RESULT OF DATA ANALYSIS

This research strives to develop a model for developing the ability in research and development of local curriculum of northern community teachers through the integration of constructionism theory learning process and the participatory action research. The research presents the results of the data analysis consistently with the research objectives with the following order.

1. A model for developing the ability in research and development of local curriculum of northern community teachers through the integration of constructionism theory learning process and participatory action research.

2. The results of the model for developing the ability in research and development of local curriculum of northern community teachers through the integration of constructionism theory learning process and participatory action research as the followings.

- 2.1 The results of development of the abilities in research and development of local curriculum of the community teachers.

- 2.2 The results of the research and development of local curriculum that arise from the development of the ability in research and development of local curriculum of the community teachers.

- 2.3 The participants' opinions and feelings toward the participation in this research.

1. A model for developing the ability in research and development of local curriculum of northern community teachers through the integration of constructionism theory learning process and participatory action research is composed of:

1.1 The model of constructionism theory learning process integrated with the participatory action research, which is used in the implementation of this research

In this research, the researcher applies the constructionism theory learning process that is integrated with the participatory action research by synthesizing them into four steps which are (1) to study the problem conditions, (2) to prepare the plan to develop abilities in research and development of local curriculum of the community teachers, (3) to implement the development plan on abilities in research and development of local curriculum, and (4) to evaluate the result of implementation of the development plan on abilities in research and development of local curriculum and the plan implementation according to the guideline of the prepared steps. These steps are developed and improved to be more efficient to the real situation while the research is conducted to get the most appropriate model for the development on abilities in research and development of local curriculum of northern community teachers. The details of the results of study in each step are given as the followings.

Step 1: To study the problematic condition. This is done through the researcher's opening of the opportunities for the community teachers and the relevant people in the local communities to survey the relevant issues that lead to the research and development of local curriculum. Then the participants analyze together to identify the problematic issues in the research and development of local curriculum for the area of each of the community teachers, as well as the guidelines for developing the community teachers' abilities in research and development of local curriculum.

In this step, the researcher starts by surveying the basic abilities of the community teachers in research and development of local curriculum by asking a question worded as "Who has accomplished a research and development of local curriculum?" The replies reveal that none of the community teachers have finished any research and development of local curriculum. The researcher therefore opens the floor of discussion related to an issue around "If we would develop the community teachers' abilities in research and development of local curriculum, what we need to know and to do?" This issue opens of the exploration of further issues for the discussion for the first time although it has not reached the summary of the discussion. Most of this beginning will emphasize on the surveys on the demographic data of the local communities and the study of the policy of the related organizations such as the Subdistrict Administration Organization and the Office of Non-formal Education. When the results of this early discussion have not covered the important contents of the research and development of local curriculum, the researcher opens another opportunity for the community teachers to study further the other issues for the discussion. These issues are taken from the media that the researcher prepares for the community teachers as stated in Chapter 3 and the additional knowledge according to the contents of Chapter 2. After that the researcher opens a new round of discussion around the same issues again. This new round would broaden the issues for discussion and cover more issues. The researcher stimulates the community teachers to think together continuously about each issue and follow up the results of the discussion until they cover the important areas related to research and development of local curriculum. The researcher also allows the community teachers to consider together the categories and priorities of things to be done. The researcher provides additional knowledge for the community teachers about making the criteria for the authentic assessment according to the guideline in the Rubric and considering the criteria for the evaluation in each topic.

Eventually the researcher evaluates the community teachers' abilities in research and development of local curriculum through the participatory process and records the evaluation results before starting the process to develop these abilities of the teachers. During the development of the criteria for the evaluation, the first thing to undertake is a study of the context of the local communities. The researcher opens a discussion around an issue about "If we want to study the context of local communities that leads to the identification of the research issues and development of local curriculum, what needs to be studied and to be done?" After compiling the results of the discussion, the community teachers survey the context of the local communities according to the issues for the research and development of local curriculum in the communities where they perform the task together with the relevant people. These people are the local wisdom practitioners and learners. Then an analysis

is done together between the community teachers and the researcher. This analysis will lead to the identification of the problematic issues in research and development of local curriculum by each of the community teachers by arrangement of the problematic issues in the research and development of local curriculum by the community teachers into four aspects. These are (1) the culture, (2) the herbs, (3) the local environment, and 4) the agricultural practices. The problematic issue that the community teachers, local wisdom practitioners and learners pay attention the most and set as prioritized necessity in the curriculum implementation is the culture (53.33 percent of the samples).

The results of the implementation in Step 1 show that the researcher accomplishes the preliminary survey of the community teachers to prepare the plan to develop abilities in research and development of local curriculum of the community teachers in the next step. During the survey, which is the first step of the participatory action research integrated with the constructionism theory learning process, the researcher prepares the learning media, opens the discussion, and creates the climate for creative learning together. This preparation induces the community teachers to learn together creatively “the criteria to evaluate abilities in research and development of local curriculum of the community teachers.” It also leads the community teachers to learn about the learning areas they can learn and develop about the research and development of local curriculum including the methods to create the authentic assessment criteria. The community teachers must necessarily apply the research and development of local curriculum further. In this step the community teachers create (Construct) further discussions within those selected topics. Through the survey of the priorities in the research and development of local curriculum, the community teachers can learn from actual practice by studying, writing and composing the research reports by themselves.

In addition, each of the community teachers surveys and analyzes the context of the local communities that lead to the identification of the problematic issues for the research and development of local curriculum. These activities lead to the settled plan for research and development of local curriculum by each of the community teachers.

Step 2: To prepare a plan to develop community teachers’ abilities in research and development of local curriculum. Arranged by the community teachers and researcher using the guideline, which was identified in Step 1, this step identifies the plan to develop the community teachers’ abilities in research and development of local curriculum consistently and timely with the context of local communities in the Northern Region. Generally the created plan will arrange the contents following the set criteria to evaluate abilities in research and develop of local curriculum of the community teachers by setting the learning exchange seminar in the large group of teachers once a month and the smaller sub-group seminar twice a month. The contents arrangement is given as the followings.

Topic 1: Study and analysis of the context of the local communities that lead to identification of the issues in research and development of local curriculum.

Topic 2: Basic preparation for the implementation of research and development of local curriculum.

Topic 3: Preparation for the methodological steps of research and development of local curriculum.

Topic 4: Step of implementation of research and development of local curriculum according to the plan and/or the prepared research timeline.

Topic 5: Step of publication of the implementation and distribution of the results of research and development of local curriculum.

In Step 2 during the earlier period the basic plan is set as the followings. Topic 1: for 15 days; Topics 2 and 3 take 15 days; Topic 4 for three months; Topic 5 take one month; or a total of five months. But the real implementation in Step 3 shows that Topic 4 cannot be implemented according to the original plan. The topics that the community teachers cover for the research and development of local curriculum are related to the seasons and the availabilities of the performing of cultural and traditional festivities. To cover each festival set in the plan, the community teachers need to adjust the timeline into eight months and thus the plan to develop the teachers' abilities in research and development of local curriculum.

The plan for research and development of local curriculum of each of the community teachers is planned consistently with the constructed plan to develop abilities in research and development of local curriculum.

Step 3: Implementation of the plan to develop abilities in research and development of local curriculum. This can be done by bringing the created plan in Step 2 into implementation starting from 4 October 2006 until 31 October 2007 by engineering a friendly informal climate and a reflection and ideas exchange to review the implementation of the plan together to develop local curriculum continuously. The arrangement is done according to the prioritized order identified in the development plan as the following details.

Topic 1: Study and analysis of the contexts of the local communities that lead to identification of issues in research and development of local curriculum with further sub-issues: (1) study of the context of the local communities, (2) analysis of the context of the local communities and (3) identification of the crucial issues within the research and development of local curriculum consistently created with the local community context.

The implementation of the Topic 1 is undertaken after the issue for the discussion has been set as "If we study the context of the local communities that leads to identification of issues for research and development of local curriculum, what needs to be studied and how to do it?" The community teachers discuss together with the researcher and summarize that they "must study the way of life of the communities, the population data, the educational data, the occupational patterns, the arts, culture, traditions, local wisdom, local resources, the environment, geographical information, weather and then record and compose all these data systematic ways for use in analysis in the local community context.

After this step the researcher sets further discussion on the topic of "how to analyze the context of a local community." The community teachers discuss together with the researcher and summarize that "analysis of categories and arrangement of priority order by allowing the participation of the local wisdom practitioner and learners in the analysis". The researcher reveals to the teachers the knowledge about the method of analysis for making categories and arranging order of priorities, including producing a guideline to consider the issue that leads to research and development of local curriculum. This guideline states that "these issues should be the issues upon which the participants in the local communities give priority, ready to

cooperate in curriculum development, and show potentials for success in practice” . Along with making appointment with the community teachers to prepare the issues, the researcher also invites them into seminars about the problematic issues that lead to research and development of local curriculum with relevance around the local context. At the same time the researcher also tests the drafted topics of issues for research and development of local curriculum according to the relevant local issues and the local contexts of the communities. Included in these topics is the thing that must be written according to sub-issues in Topic 2 (basic preparation for the implementation of research and development of local curriculum). In writing the topics of research and development of local curriculum and their sub-issues in Topic 2, the researcher suggests the community teachers to consider from the samples of the research according to the media that the researcher has prepared and/or the community teachers have studied from many sources. The researcher as the facilitator of the schools installs the internet system for the community teachers to use for study according to the research process. The researcher does not suggest the community teachers the methods to write the research topics and issues before allowing the teachers to write on their own because the researcher allows the community teachers to learn by themselves and learn together with their peer from other local communities. This is part of the constructionism theory learning process that emphasizes the learners to seek for knowledge on their own, to create the learning and exchange of learning together in a friendly climate, and to prepare the media that facilitate the learning in the situation that consistent with the potentials of each individual. Thus the learners here, who are the community teachers, can develop themselves with full potentials before getting into next step of the development process. After that they can go back to their own communities to implement the learning as above.

Topic 2: basic preparation for the implementation of the research and development of local curriculum. This topic has the following sub-issues: (1) identification and writing of the topics for research and development of local curriculum, (2) presentation of the background and importance of the problems that lead to research and development of local curriculum, (3) presentation of the research objectives and development of local curriculum, (4) presentation of the areas of research and development of local curriculum, (5) presentation of the benefits derived from research and development of local curriculum, (6) presentation of specific terms, (7) presentation of the principles, contents, experience, or related literature to the research and development of local curriculum, (8) writing of the conceptual framework in research and development of local curriculum, and (9) preparation of the references and the bibliography.

After the community teachers experiment with writing the topics of research and development of local curriculum and the sub-issues according to the details of the Topic 2 mentioned earlier, this experiment is considered as the second piece of work that the community teachers construct. The researcher opens the chance for the community teachers to present and exchange the leaning results with one another. The researcher discusses together with the teachers, stimulates them to exchange the learning, provides additional advice according to the issues, and classifies the community teachers into four groups according to the issues of the problem such are the culture, the herbs, the environment and the agricultural practices. The community

teachers consider the details in each piece of work that each of them has prepared. After that the teachers are given the guideline for going back to develop the second piece of work better. Simultaneously they prepare the third piece of work, which is preparation for the step of research methodology and development of local curriculum. This step is composed of the identification of the target group of the research and development of local curriculum, the identification of the steps of research and development of local curriculum, the preparation for the tools of research and development of local curriculum, and the preparation for data collection. All of these procedures are accomplished during the implementation of research and development of local curriculum and preparation for analysis for the data gathered during the research and development of local curriculum. The implementation is similar to the implementation in Topic 2. However this time the researcher allows the community teachers in each group as divided above conduct the group seminar and consider the third piece of work in advance before entering the seminar at the district level conducted by the researcher. This arrangement is settled to solve the problems of considerable amount of time spent for the big group seminar at the district level.

Topic 3: preparation for the methodological steps of research and development of local curriculum. This topic has the following sub-issues: (1) identification of the target group in research and development of local curriculum, (2) identification of the process steps of research and development of local curriculum, (3) preparation of the tools for research and development of local curriculum, (4) preparation for data collection during implementation of the research and development of local curriculum, and (5) preparation for the analysis for data collected during the implementation of research and development of local curriculum.

After the researcher divides the big group of the local community teachers into smaller sub-groups (about 3 to 5 teachers) according to their respective research problems, they are set to attend seminars in advance before joining the big group seminar. The small group seminars produce good results and learning results very quickly and deeply. The time spent for the big group seminar of plan implementation thus becomes less. Such results show that the implementation of a model using the small-sized group seminar according to the research process brings good results and higher efficiency than the use of big group seminars. The interviews with the community teachers gather the similar the answers to the observation above. It can be summarized that more learning is achieved while lesser time is spent. Besides, the learning climate is better as the small group seminar is less tiresome than the big group one. Both the learning exchange of the community teachers and the researcher's time management for the seminar become more efficiently. Lesser time is needed and the discussions to exchange the learning adhere better to the settled plan. It appears that the trial to solve the problems requires more time in the big group seminar at district level than the time used for the smaller group seminars. This efficient use time for the increasing level of learning of the community teachers is another issue discovered during the research implementation.

After the community teachers improve and develop the plan for research and development of local curriculum already, they are ready to proceed with the learning and implementation next step. Therefore the implementation through the use of the small-sized group seminar is continued for Topic 4.

Topic 4: Step of implementation of research and development of local curriculum according to the plan and/or prepared research timeline. Within this topic there are sub-issues, which are (1) the implementation according to the steps, and (2) the prepared research process and prepared development of local curriculum. The data collection during the implementation is followed by analysis of data, presentation of the data analysis, discussion of data, summary of research results, development of local curriculum, writing of technical suggestions, and suggesting of practical suggestions.

In Topic 4 the researcher sets the development of the community teachers through the learning process according to the constructionism theory learning process that is integrated with the participatory action research by adjusting the development model from the big group discussion into the smaller group seminar. The big group seminar is set once a month and the sub-group seminar twice a month. The community teachers also implement the research and the development of local curriculum in each community according to their plan for research and development of local curriculum.

The implementation in this step emphasizes the practice in each of the communities where the community teachers are working. These teachers have various problems during the implementation of research especially about the seasons and the time to perform the traditional and cultural activities for each festival. It is not possible to set the similar implementation plans for every local community with the same time table. Therefore it is necessary to adjust or extend the research time to be more consistent with the time of each implementation of the research by the community teachers. In this step the community teachers create important tasks with high consistency with local curriculum that they presented in the topics of research and development of local curriculum. During this time the community teachers prepare to publish and distribute the research implementation proceedings and/or findings.

Topic 5: Step of publication of the implementation and distribution of the results of research and development of local curriculum. This step has some sub-issues, which are (1) arrangement and report of published findings for research and development of local curriculum, (2) distribution the report of the findings of research and development of local curriculum. This preparation publishes the local curriculum that has been produced through the research to use and generalize later.

During the implementation in this step the community teachers and the researcher face the most tasks and responsibilities. Therefore the whole processes in this step highly affect the arrangement for publication and reporting of research and development of local curriculum by the community teachers. Moreover the community teachers distribute their findings of research and development of local curriculum in both subdistrict and district levels. The findings are accepted by many organizations such as subdistrict administration organizations and amphoe or district agricultural extension offices. The District Agricultural Extension Office Head and Agricultural Academician of Mae Fah Luang District Agricultural Extension Office participate in the listening of the presentation of the findings on research and development of local curriculum by the community teachers. These officers also admire the work results that the community teachers have created, as well as the local wisdom practitioners in the communities who have participated in the community

teachers' attempts in local curriculum development. These participants show pride in participating in the creation of local curriculum that covers the important and valuable things for the local communities involved.

Step 4: supervising, evaluation, and follow-up of the implementation of the plan to develop community teachers' abilities in research and development of local curriculum. This step of implementation proceeds along with the teachers' group seminar to exchange experience and suggestions to one another according to the time identified by the relevant participants to evaluate and improve the plan to develop abilities in research and development of local curriculum of the community teachers. This research sets the big group seminar once a month and the small group seminar twice a month. In addition, there is an evaluation system for the implementation in the areas where the community teachers work through the network of the learning facilitators who are assigned by the community teachers in each local community. They will be responsible as evaluators who offer advice and implement the small group seminars and participate in the meetings with the researcher once a week to exchange the learning about research and development of local curriculum. These evaluators also add other skills for the community teachers.

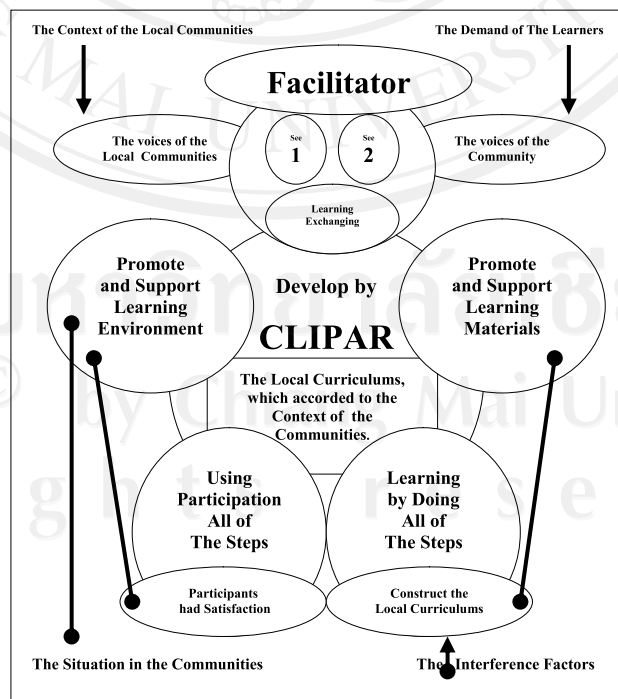
In the earlier period of the evaluation, the emphasis is given on the evaluation follow-up on the preparation for local curriculum of each of the community teachers. The findings show that the majority of the community teachers have shown understanding and abilities produce drafts of local curriculum together with the local wisdom practitioners. However the problems found in the earlier period show that some teachers can not identify the perimeter of the contents in local curriculum that are consistent with the time table of the research implementation. Therefore there must be some improvements on the clear understanding about the perimeters of the contents of local curriculum of the community teachers. For example, the subject of "way of life" of the hill tribes, which is very broad topic, is suggested to be selected as the urgent topics for which the community teachers can identify its areas of contents for the local curriculum. When the community teachers finished the drafts for the local curriculum, they found the next problem, which was the preparation of the teaching and learning media for some community teachers. They are not familiar with the reading materials. As the results they try to produce the media in forms of documents, which are not consistent with the nature of the contents of local curriculum. The researcher then creates a friendly competitive situation to allow the community teachers to compete in the production of teaching media. This attempt brings forth a good result to the community teachers. They become aware and enthusiastically learn together to select and create the media from what they already have in the local communities, such as raw materials found in the local communities. Thus selected, the media that the community teachers select to use turns to be more consistently with the nature of contents of the local curriculum they construct and develop.

The steps of evaluation and the follow-up show that the learners and most of the community teachers select the authentic assessment methods by making the criteria to evaluate the learners according to the contents in the constructed local curriculum. These results show that the authentic assessment methods are mixed with the nature of the contents and the learners. The data collected from the local wisdom practitioners shows that all the participating community teachers use interview as the

main method and other methods as the supplementary methods. The community teachers analyze the results and present the analysis of findings consistently with the data that the teachers gather in real situation in the community where the community teachers implement the research and development of local curriculum. The follow-up shows that the community teachers and researcher as the educational administrators must spend considerable amount of time on many other urgent matters. They have little time left for writing the reports for discussions and suggestions, as well as for arranging and publishing the research reports. This hindrance reduces the quality of the teachers' works on these aspects because of the time are not feasible at the time. Nevertheless the presentation of the results of research and development of local curriculum that the community teachers create through the participation process with the local community member is accepted by the communities and relevant organizations. The analysis of the implementation plan for the next year of each of the community teachers shows that the topics on local curriculum created by the community teachers are adopted. The local curriculum has some tasks that need to be implemented continuously.

In addition, the analysis also shows the process of the curriculum development processes that the community teachers has undertaken. After analyzing the context of the communities and identifying the issues for research and development of the curriculum together with the local wisdom practitioners, the participants set the draft of the Curriculum Layout, the teaching plan, the arrangement of the teaching and learning activities, the evaluation process, and the follow-up plan to lead to the improvement of these drafts until they can be successfully implemented. Then the participants prepare the summary of the research results.

The details presented here can be summarized into Figure 5 to 10 as the followings orders.



Good Morning ! I am CLIPAR.

Figure 5 DAR&DLC by CLIPAR Model : A Model for Developing the Ability in Research and Development of Local Curriculum by Constructionism Theory Learning Process Integrated with Participatory Action Research

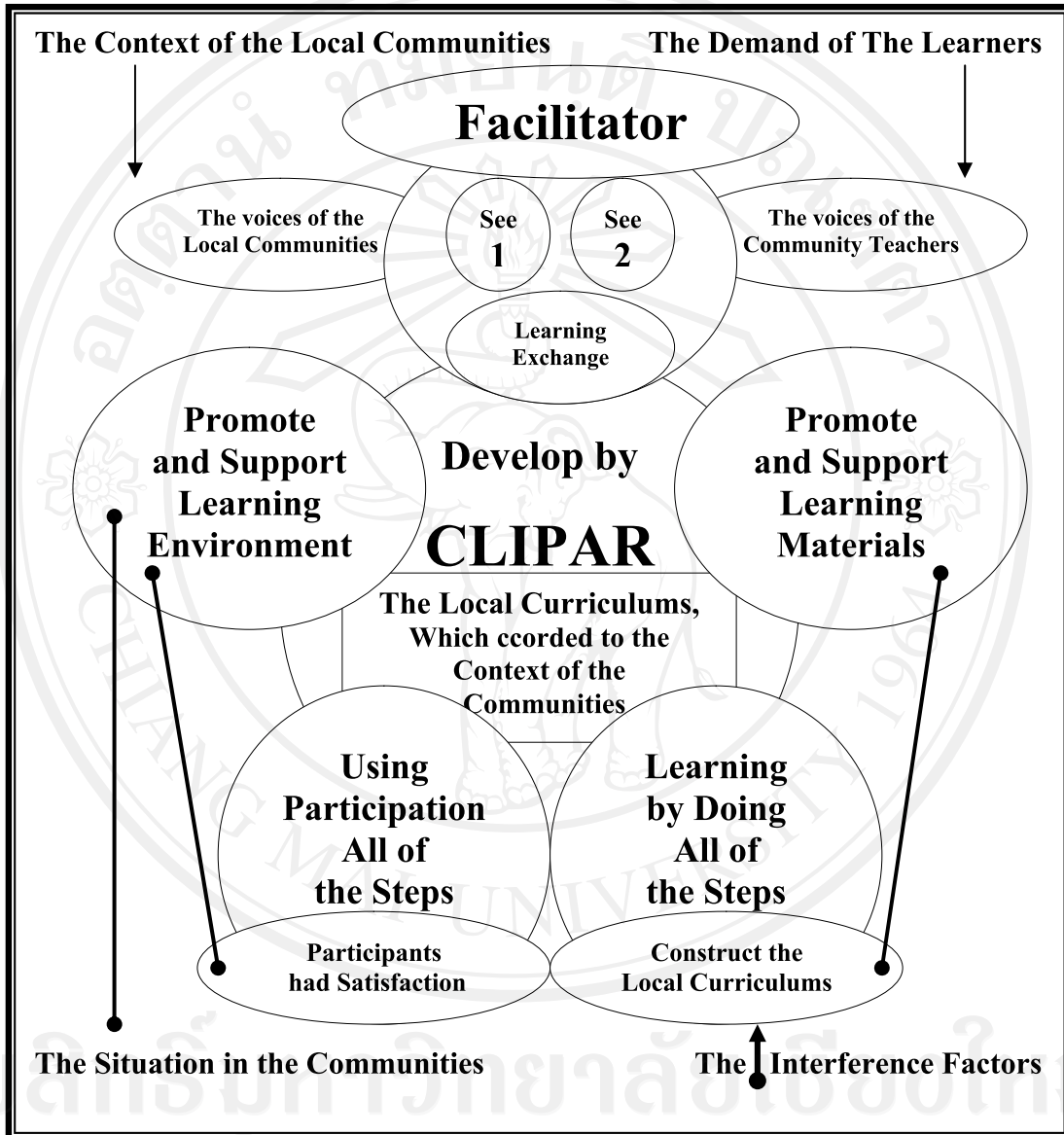


Figure 5 shows that the development of abilities in research and development of local curriculum must consider the context of the local communities, the demands of the learners, the situation in the communities, and the interference factors occurring during its implementation of the community teachers. The facilitators must analyze by listening to the opinions from the community member and the community teachers. The voices of the local communities should be consistent with the context of the communities and the opinions of the community teachers should be consistent with the demands of the learners. Therefore the preliminary survey of basic situation is necessary to lead to learning exchange for an enhanced learning experience.

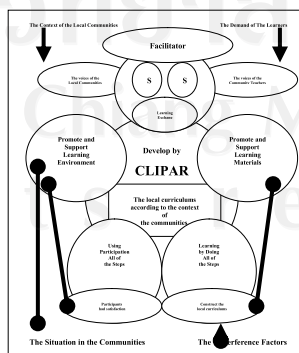
Good surveys build a good development plan according to the constructionism theory learning process that is integrated with the participatory action research. During the development the evaluation for the progress of the development, the research sets the well- integration of the facilitating climate for the learning as well as supporting media for the learning (promote and support environment and materials for learning). All of the steps emphasize the participatory process and the learning along with actual practice(learning by doing).

In creating the facilitating climate for the learning, the facilitators must create the learning exchange climate in friendly, hospitable, clear, helpful, and stimulating manners to the group learning. There is activity connecting between the group seminars along with the activities that the community teachers undertake continuously in the communities and the supports related to the media that facilitate the learning. This set of media should be related to the topics that the community teachers need to learn. The source of media is prepared by the learning facilitator and the media that the community teachers look for appears as the results of the actual practices by the community teachers. Each part of this set of learning media is interlinked as each is brought to use as the media that facilitate the learning properly.

Aside from the learning undertaken along with the actual practice, it is also necessary to enable the community teachers to create the knowledge by themselves. They are led to stand on their own feet with their own endeavors. The participatory process in all of the steps is the important basic to develop abilities in research and development of local curriculum of the community teachers by using the CLIPAR as the reinforcement to create the climate for learning together. This method satisfies the participants' needs. In addition, the situation in the local communities has linkage to the learning climate. The interference factors that occur during the development process will surely affect the continuity of the community teachers' work occurrence as well.

The DAR&DLC by CLIPAR Model eventually led to birth of the Local Curriculums that accorded to the context of the communities, which were constructed by the ability in research and development of local curriculum of the community teachers.

The details of the model are shown in figure 6 to 10 as the followings.



I am CLIPAR.

Please see the components of my body in the next.

Figure 6 The Diagram of CLIPAR : Constructionism theory Learning process Integrated with Participatory Action Research

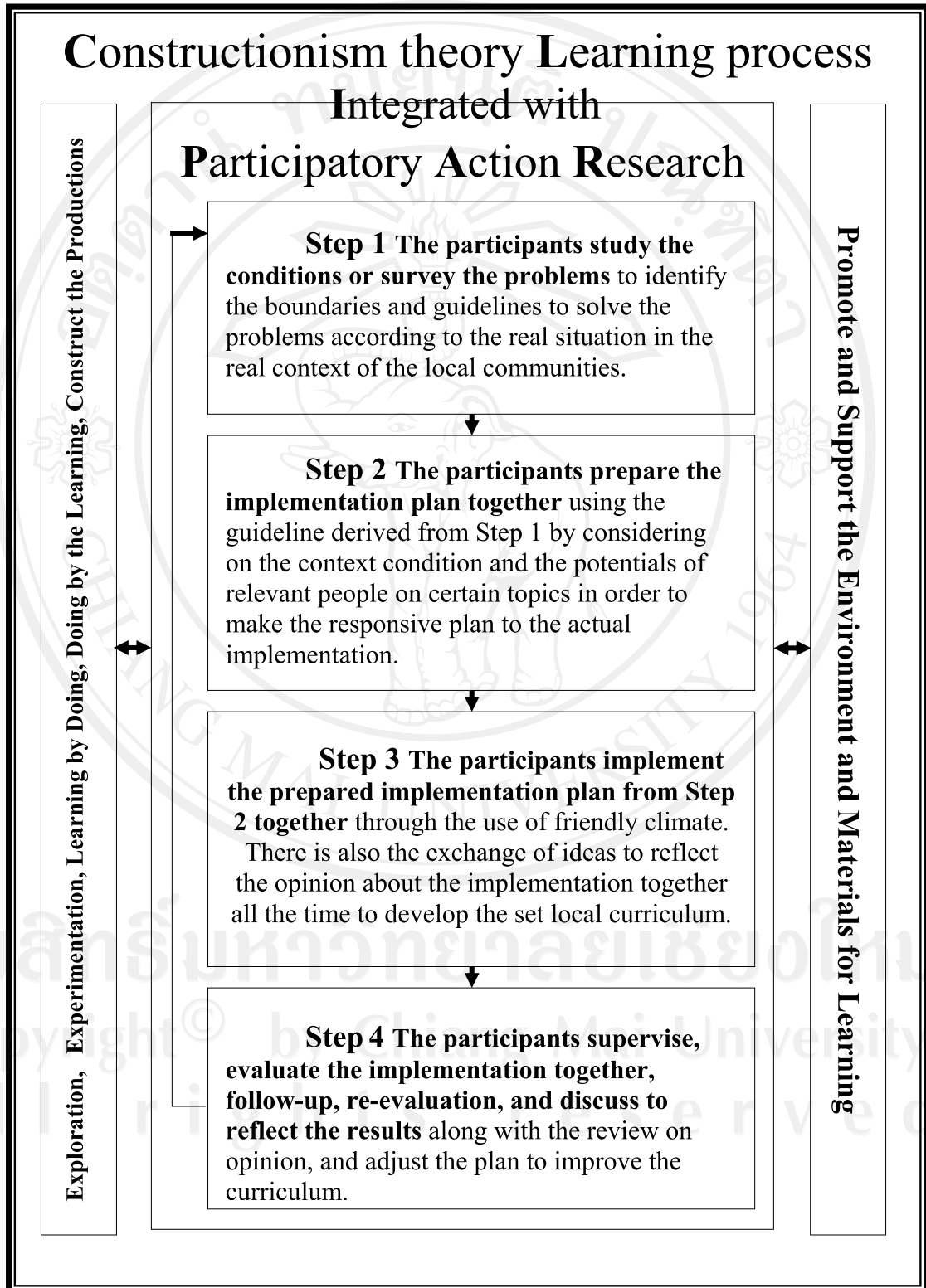


Figure 7 Shown the Diagram of the details in Step 1 of the CLIPAR

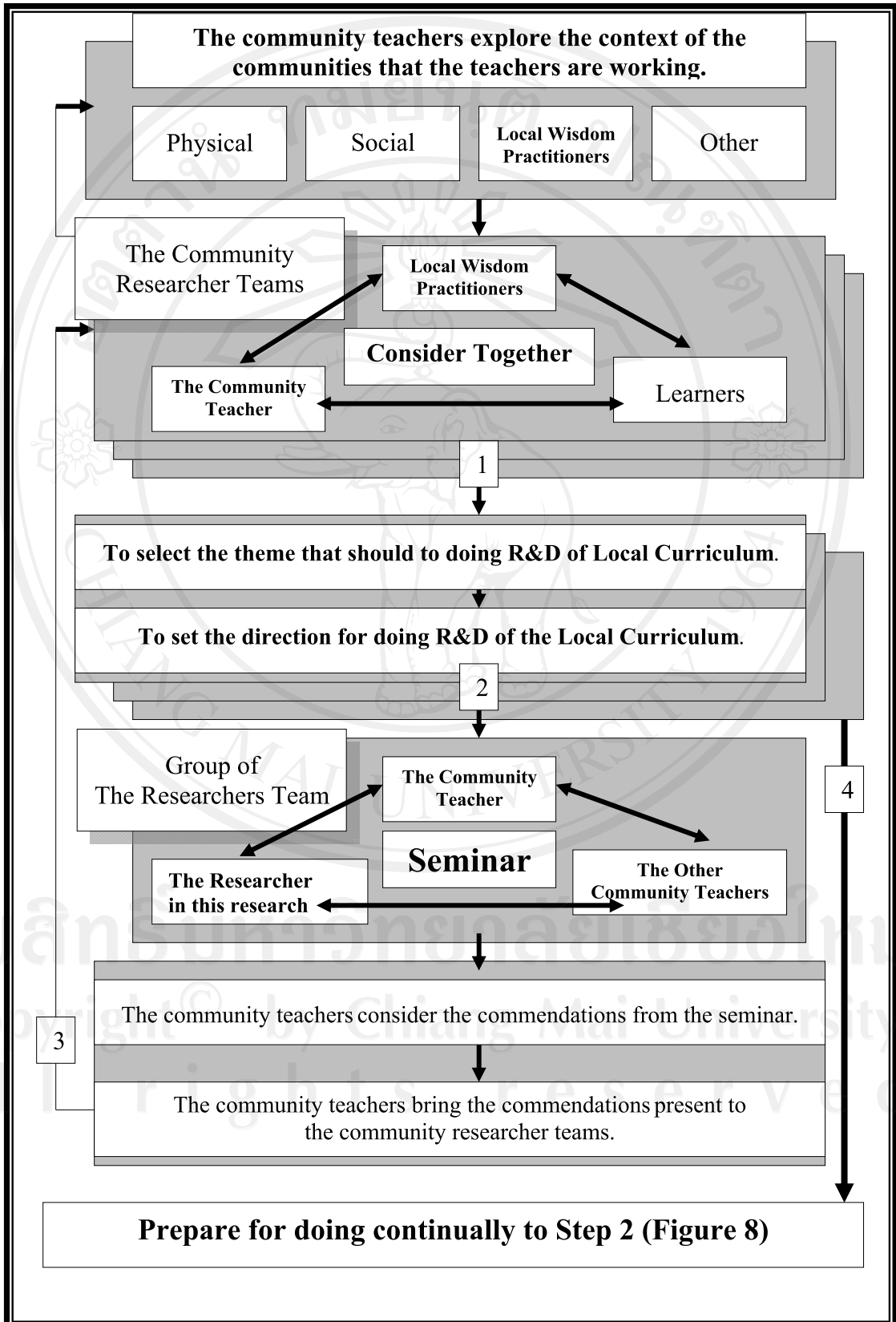


Figure 8 Shown the Diagram of the details in Step 2 of the CLIPAR

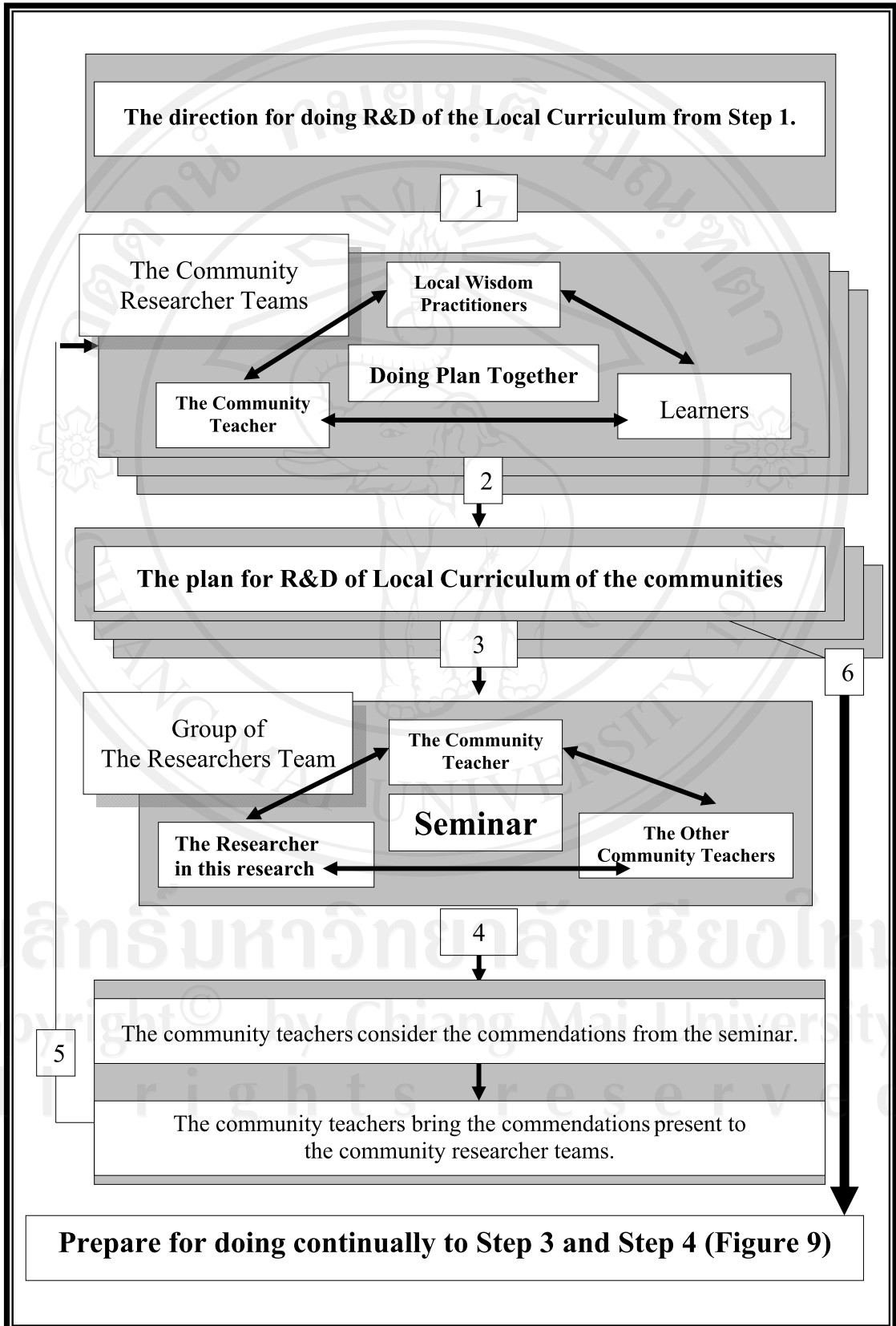


Figure 9 Shown the Diagram of the details in Step 3 and Step 4 of the CLIPAR

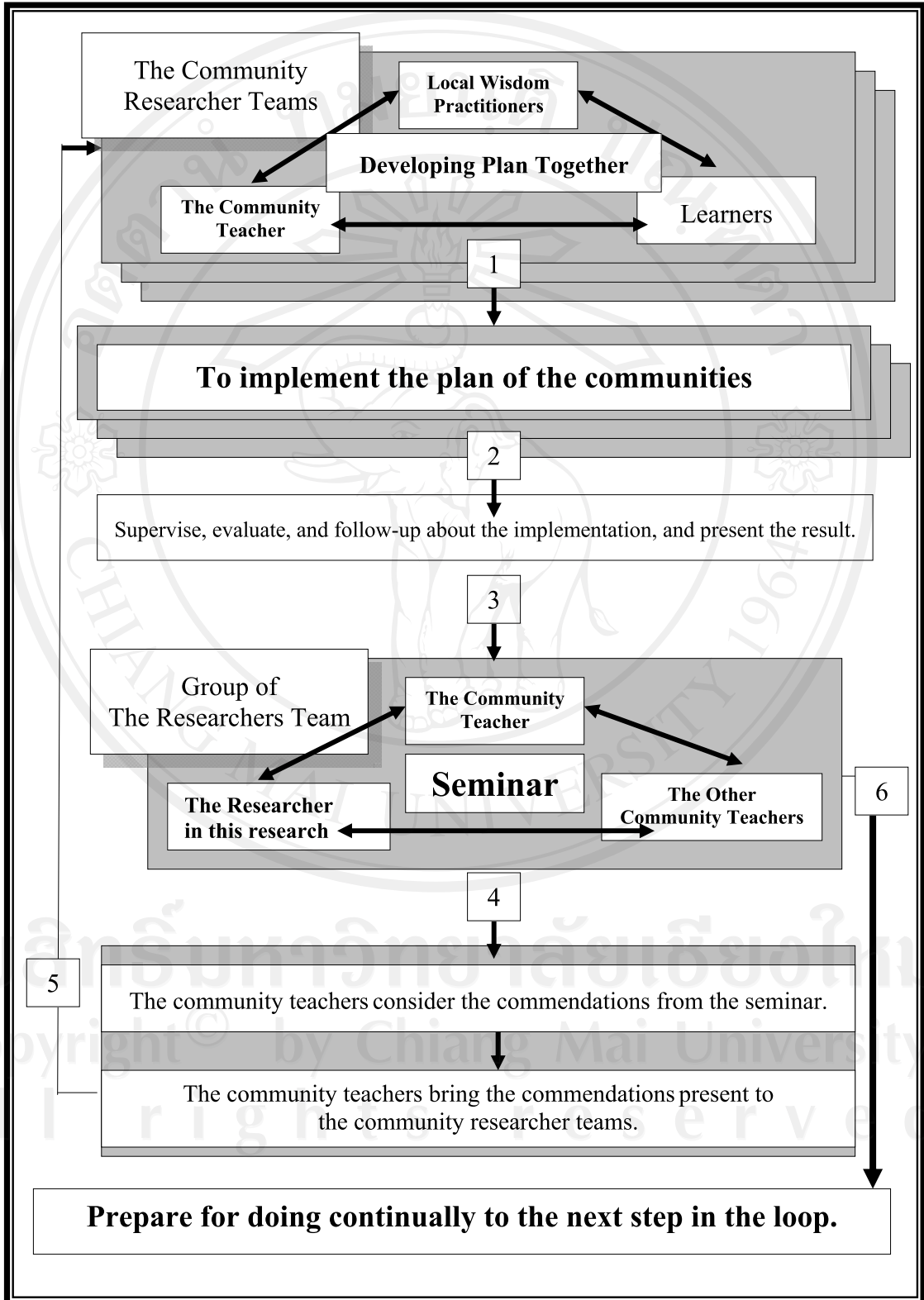
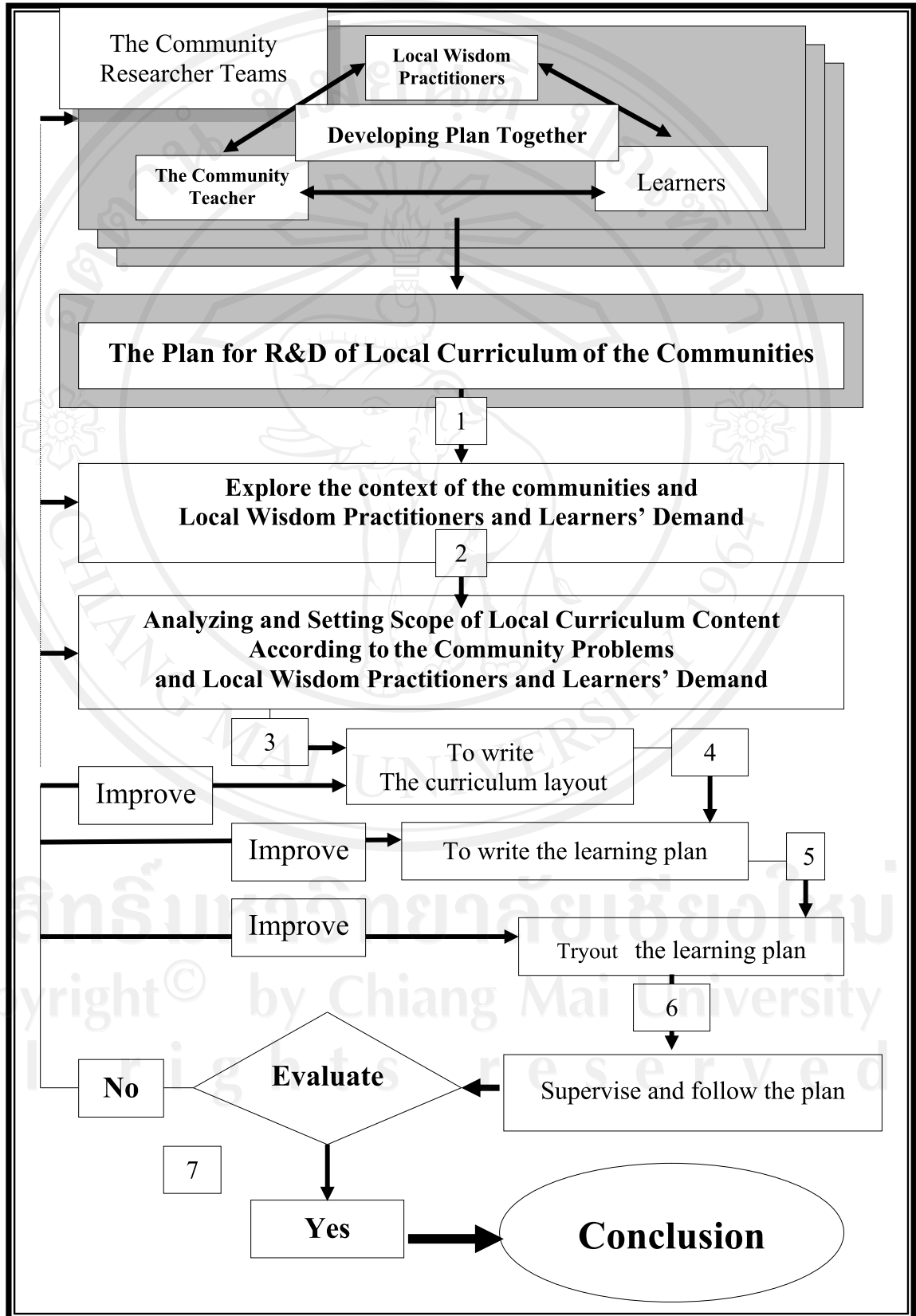


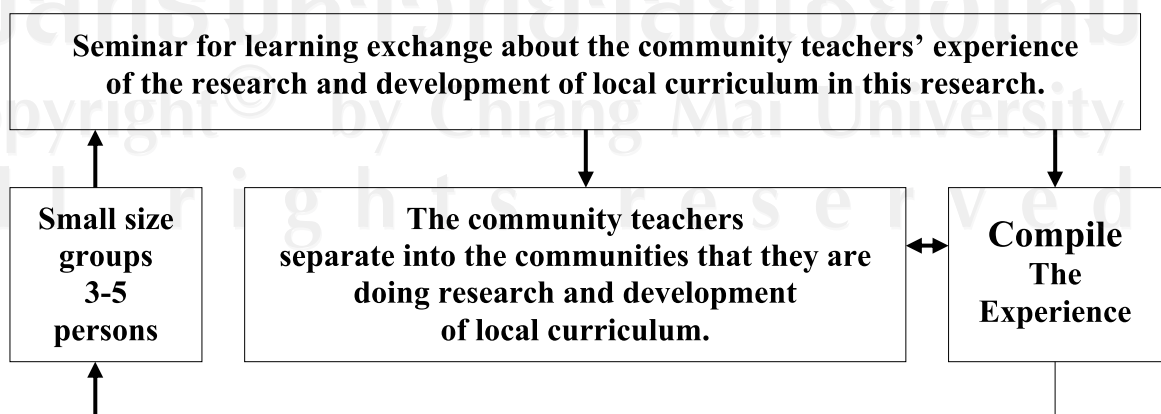
Figure 10 Shown the Diagram of the research and development of local curriculum of the community teacher



1.2 The model to arrange small size groups to develop the community teachers' abilities in research and development of local curriculum which is used in the implementation of this research

After launching the process to develop the teachers' abilities in research and development of local curriculum through the implementation of the constructionism theory learning process integrated with the participatory action research, the experiments are settled according to the steps of research and development. The results of the experiments show that the development process derived from the synthesis can be implemented properly to develop abilities in research and development of local curriculum of northern community teachers. This model is using the small group seminars with the number participants set to three to five persons because the development process requires the participatory process in the exchange of the learning of the community teachers. The researcher acts as the learning facilitator and participant in the analysis of the issues which are presented by the community teachers in order to exchange the learning and experience with one another. It leads to the stimulation and fulfillment on doing research and development of local curriculum together with the community teachers in a continuous process. In case of the implementation by the community teachers, the shared learning process cannot be created equally well for all of them in a limited time. The implementation within the groups of the community teachers requires a large amount of time for exchanging the learning and experience. As the result, the community teachers as the learners and the researcher as the learning facilitator feel exhausted. This exhaustion becomes an important obstacle in the learning as the climate does not facilitate sufficiently the learning. The researcher needs to re-adjust the model to be small group seminar with the number of member per group not more than five people. This simpler format enhances the efficiency of the learning exchange for all groups and builds a climate that facilitates the learning further. The participants also spend less time for exchanging their learning. This chain of events can be represented by Figure 11.

Figure 11 The model to arrange small size groups to develop the community teachers' abilities in research and development of local curriculum which is used in the implementation of this research that had efficiency



2. The results of the model for developing the ability in research and development of local curriculum of northern community teachers through the integration of constructionism theory learning process and participatory action research as the followings.

2.1 The results of development of the abilities in research and development of local curriculum of the community teachers are presented as the followings..

2.1.1 Whole picture of the result of development on abilities in research and development of local curriculum of the community teachers

Table 1: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development as the whole picture.

The Topics that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
Topic 1 Study and analysis of the context of the local communities that lead to identification of the issues in research and development of local curriculum	0.96	4.91	79.11	Rather high
Topic 2 Basic preparation for the implementation of research and development of local curriculum	0.00	3.79	75.85	Rather high
Topic 3 Preparation for the methodological steps of research and development of local curriculum	0.00	3.49	69.87	Rather high
Topic 4 Step of implementation of research and development of local curriculum according to the plan and/or prepared research timeline	0.00	3.43	68.67	Rather high
Topic 5 Step of publication of the implementation and distribution of the results of research and development of local curriculum	0.00	3.56	71.11	Rather high
Total	0.11	3.75	72.87	Rather high

In Table 1 the whole picture shows that the community teachers have developed their abilities in research and development of local curriculum rather high (72.87 percent). Before undergoing the process for developing their abilities, the community teachers reveal their abilities in research and development of local curriculum under the criteria of “should study further” (with the average score of 0.11). After passing the development process, the community teachers are able to do research and development of local curriculum in the criteria of “good level” (average score of 3.75). Consideration for each topic shows that after the development process the community teachers are developing in rather high level in all topics especially on Topic 1 (study and analysis of the context of the local communities that lead to identification of the issues in research and development of local curriculum). The average value of measured development is the highest of all topics (79.11 percent). In Topic 3 (preparation for the methodological steps of research and development of local curriculum) the percentage of development is the second rank from the least developed (69.87 percent) and the lowest level of improvement appears in Topic 4 (step of implementation of research and development of local curriculum according to the plan and/or prepared research timeline) (68.67 percent). However such the three topics are still under the criteria of “rather high” to create the teachers’ ability development.

For Topic 1 (study and analysis of the context of the local communities that lead to identification of the issues in research and development of local curriculum), the community teachers have shown basic capabilities before the model development at the level of “should be brought into practice” (average score of 0.96). After they pass the development process the measurement shows that their abilities grow higher into the level of “very good” (average score of 4.91). For the other topics the community teachers have abilities in the criteria of “should study further” (average score of 0.0) during the pre-assessment. The post-assessment after development process for Topic 3 (preparation for the methodological steps of research and development of local curriculum) shows an average score of 3.49. The post-assessment score for Topic 4 (step of implementation of research and development of local curriculum according to the plan and/or the prepared research timeline) reaches an average score of 3.43, which belongs to the criteria of “fair” while other topics are in “good” levels.

These data show the whole picture of the results of the development of abilities in research and development of local curriculum of northern community teachers through the constructionism theory learning process integrated with the participatory action research. It can be summarized that the community teachers that have passed the development process have developed rather high in all topics. They display higher abilities in a “very good” level in the topic of study and analysis of the context of the local communities that lead to identification of the issues in research and development of local curriculum. But in the Topic 3 (preparation for the methodological steps of research and development of local curriculum) and Topic 4 (step of implementation of research and development of local curriculum according to the plan and/or the prepared research timeline) the community teachers stand in the criteria of “fair.” The analysis on the results of the development in each topic by the researcher and their respective issues is presented in what follows.

2.1.2 Results of development on abilities in research and development of local curriculum of northern community teachers on Topic 1: study and analysis of the context of local communities that lead to identification of research issues and development of local curriculum

Table 2: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development on Topic 1: study and analysis of the context of local communities that lead to identification of research issues and development of local curriculum.

The sub-issues in Topic 1 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
1. The study of the local contexts	2.27	5.00	54.67	Moderate
2. The analysis of the local context	0.60	4.87	85.33	High
3. The identification of issues for research and development of local curriculum consistently with the local contexts	0.00	4.87	97.33	High
Total	0.96	4.91	79.11	Rather high

Table 2 shows clearly that in Topic 1 (study and analysis of the context of the local communities that lead to the identification of research issues and development of local curriculum) the community teachers have developed in rather high level (79.11 percent). When considered in details, it shows that there are high levels of results on the development on two topics, which are the identification of issues for research and development of local curriculum consistently with the local contexts and the analysis of the local context (developed as high as 97.33 percent and 85.33 percent, respectively). The study of the local contexts shows the results of development in “moderate” level (54.67 percent). Although the issues of the study of the local context show the development results lower than those of the other two issues, this issue registers the highest average score on post-assessment (after the development) (average score of 5.00). This issue also records the better score in pre-assessment (before the development) than those of the other issues, which fall into the criteria of “need improvement” (with the average score of 2.27). The other two issues, which are the identification of the research issues and development of local curriculum that is consistent with the local context and the analysis of the local context, have the average score in pre-assessment (before the development) in the criteria of “should study further” (average score 0.00 and 0.60 respectively).

However after the development or in the post-assessment measurement, all sub-issues in Topic 1 have the average score in the criteria of “very good”.

2.1.3 The results of the development on abilities on research and development of local curriculum of northern community teachers on Topic 2: basic preparation for the implementation of research and development of local curriculum

Table 3: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development on Topic 2: basic preparation for the implementation of research and development of local curriculum.

The sub-issues in Topic 2 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
1. Identification and writing of the themes of research and development of local curriculum	0.00	4.53	90.67	High
2. Presentation of the background and the importance of the problems that lead to research and development of local curriculum	0.00	4.33	86.67	High
3. Presentation of the objectives of research and development of local curriculum	0.00	3.93	78.67	Rather high
4. Presentation of the limitation of research and development of local curriculum	0.00	3.73	74.67	Rather high
5. Presentation of the benefits gained from the research and development of local curriculum	0.00	3.73	74.67	Rather high
6. Presentation of the definitions	0.00	3.73	74.67	Rather high
7. Presentation of the review of literature about research and development of local curriculum	0.00	3.60	72.00	Rather high

Table 3 (continued)

The sub-issues in Topic 2 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
8. Writing of conceptual framework of the research and development of local curriculum	0.00	3.53	70.67	Rather high
9. writing the references for sources and writing the bibliography	0.00	3.00	60.00	Moderate
Total	0.00	3.79	75.85	Rather high

Table 3, the representative of the whole of Topic 2 (basic preparation for the implementation of research and development of local curriculum), shows that the community teachers develop in rather high level (75.85 percent) on the issue of identification and writing of the themes of research and development of local curriculum and the issue on presentation of the background and the importance of the problems that lead to research and development of local curriculum are developed highly (90.67 percent and 86.67 percent respectively). For the other issues the improvements are relatively high except on the issue of writing the references for sources and writing the bibliography. This is the only issue that has been developed on the moderate level (60.00 percent).

Before the beginning of the development processes for all issues in Topic 2 the community teachers have abilities in the criteria of “should study further” (average score of 0.00). However after they undergo the development processes the community teachers improve their abilities as the whole pictures in the criteria of “good” (average score of 3.79). When considered in details, it shows that the issue on the identification and writing of the research theme and the development of local curriculum is in the criteria of “very good. (average score of 4.53). For the other issues the criteria are “good” except for the issue on writing the reference for sources and writing the bibliography. It is the only issue in the “fair criteria” (average score of 3.00).

2.1.4 The results of development of abilities in research and development of local curriculum of northern community teachers on Topic 3: preparation for the methodological steps of research and development of local curriculum

The details of the results of development of abilities in research and development of local curriculum of northern community teachers on Topic 3: preparation for the smethodological steps of research and development of local curriculum was shown in the Table 4.

Table 4: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development on Topic 3: preparation for the methodological steps of research and development of local curriculum.

The sub-issues in Topic 3 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
1. Identification of the target group in the research and development of local curriculum	0.00	3.73	74.67	Rather high
2. Identification of the steps of process for research and development of local curriculum	0.00	3.27	65.33	Rather high
3. Preparation of the tools for research and development of local curriculum	0.00	3.53	70.67	Rather high
4. Preparation of data collection of research and development of local curriculum	0.00	3.60	72.00	Rather high
5. Preparation for analysis of data derived from the data gathering during the implementation of the research and development of local curriculum	0.00	3.33	66.67	Rather high
Total	0.00	3.49	69.87	Rather high

Table 4 shows that Topic 3 (preparation for the methodological step of research and development of local curriculum) is developed relatively high as the whole picture (69.87 percent). Every sub-issue identified by the target group in the research and development of local curriculum has the highest percentage of the development (74.67 percent). Although the identification of the steps of process for research and development of local curriculum is developed rather high, the percentage value of the improvement is considered the least (65.33 percent).

Before undergoing the development process in all issues of Topic 3 the community teachers' pre-assessment abilities stand the criteria "should study further" (average score of 0.00). After joining the development process, the community teachers show abilities generally in the criteria of "good" (average score of 3.49). Consideration of the details shows that in the issues of "preparation for analysis of data derived from the data gathering during the implementation of the research and

development of local curriculum” and “identification of steps of research process and development of local curriculum” stand in the criteria of “fair” (average scores of 3.33 and 3.27 respectively). For other issues the community teachers gain the post-assessment scores belonging to “good” criteria.

2.1.5 The results of development on abilities in research and development of local curriculum of community teachers in the Northern Region in Topic 4: step of implementation of research and development of local curriculum according to the plan and/or the prepared research timeline

Table 5: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development on Topic 4: step of implementation of research and development of local curriculum according to the plan and/or the prepared research timeline.

The sub-issues in Topic 4 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
1. The steps of implementation of research and development of local curriculum according to the plan and/or prepared research schedule	0.00	3.80	76.00	Rather high
2. Data collection during doing research and development of local curriculum	0.00	3.73	74.67	Rather high
3. Analyzing the data from the collection	0.00	3.87	77.33	Rather high
4. Presentation of data analysis of research and development of local curriculum	0.00	3.87	77.33	Rather high
5. Discussion, summary of the results of research and development of local curriculum	0.00	2.93	58.67	Moderate
6. Writing technical suggestions	0.00	2.60	52.00	Moderate
Total	0.00	3.43	68.87	Rather high

Table 5 shows that Topic 4 (step of implementation of research and development of local curriculum according to the plan and/or prepared research timeline) in general display a rather high level of development (68.87 percent).

Consideration for each issue reveals that in the issues of discussion, summary of the results of research and development of local curriculum and the issues on writing technical suggestions show the result of development in “moderate” level (58.67 and 52.00 percent respectively). For the other issues the levels of development appear in the “rather high” level.

Before starting the development process in all issues of Topic 4, the steps of implementation of research and development of local curriculum according to the plan and/or prepared research schedule, the community teachers show abilities in the criteria of “should study further” (average score of 0.00). After undertaking the development process, the community teachers have abilities in the issue of discussion, summarize the result of research and development of local curriculum and the issue of writing technical suggestions and its implementation at the criteria of “fair” (average scores of 2.93 and 2.60 respectively). For the other issues the teachers reach the score under the criteria of “good.”

2.1.6 The results of developing abilities in research and development of local curriculum of northern community teachers on Topic 5: step of publication of the implementation and distribution of the results of research and development of local curriculum

Table 6: Average score on abilities in research and development of local curriculum of the community teachers before and after the development, the percentage of the development, and the result of development on Topic 5: step of publication of the implementation and distribution of the results of research and development of local curriculum.

The sub-issues in Topic 5 that used to develop the Abilities in Research and Development of Local Curriculum of the Community Teachers	Pre : Post Assessment Average Score		Percentage of the Development	Result of the Development
1. Arrangement and report of published finding for research and development of local curriculum	0.00	3.00	60.00	Moderate
2. Distribution of the results of research and development of local curriculum	0.00	3.67	73.33	Rather high
3. Preparation for expand to using the local curriculum that arise from the research and development of local curriculum	0.00	4.00	80.00	Rather high
Total	0.00	3.56	71.11	Rather high

Table 6 shows that Topic 5 (step of publication of the implementation and distribution of the results of research and development of local curriculum) has a rather high level of development (71.11 percent). Consideration in details shows that in the issue of arrangement and report of published finding for research and the development of local curriculum has the development in “moderate” level with the lowest level of percentage values in the development (60.00 percent). For the other issues the level of development appears in the level of “rather high”.

Before the starting of the development process or the issues in Topic 5 the community teachers have abilities in the criteria of “should study further” (average of 0.00). But after passing the development process the community teachers have abilities as the whole picture in the criteria of “good” (average score of 3.56) except on the issue on the arrangement and publication of the reports of the results of research and development of local curriculum, which fall into the criteria of “fair” (average score of 3.00)

In summary, the whole picture from all topics shows that the community teachers increase their abilities in research and development of local curriculum in rather high level (72.87 percent). Before starting the development process the community teachers have abilities in research and development of local curriculum in the criteria of “should study further” (average score of 0.11) After they pass the development process the community teachers have abilities in research and development of local curriculum in the criteria of “good” (average score of 3.75).

2.2 The results of the research and development of local curriculum that arise from the development of the ability in research and development of local curriculum of the community teachers.

This part reports the results of research and development of local curriculum that arise from the enhancement of abilities in research and development of local curriculum of the community teachers. This research categorizes the community teachers undertaking similar content groups into four teacher groups, which are (1) the group for traditional and culture of the communities group, (2) the group for the herbs in the communities, (3) the group for the environment in local communities, and (4) the group for agricultural practices in the communities. The details are given as the followings.

2.2.1 The results of research and development of local curriculum in the group of tradition and culture in the local communities

The research findings show that the community teachers are interested in doing research and development of local curriculum on the tradition and culture the most (53.33 percent) on eight themes as below.

Theme 1: “Development of the curriculum on the wedding tradition of the Ulo-Akha Tribe by participation of the local communities of Ban Ayo Anamai, Mae Salong Nai Subdistrict, Mae Fah Luang District, Chiang Rai Province.”

The research for this topic is implemented by Teacher Kularb Karnkeb who studies the local context and the wedding traditions of the Ulo Akha Tribe from their local wisdom practitioners in the communities through interviews and participant observation from the actual sites. Then the gathered field data is then compared with those derived from secondary data study. After this process, the researcher

participates with the community members and other participants to build a curriculum to be tested in the teaching and learning arrangement with 20 learners. The local wisdom practitioners transfer the knowledge and assist the development of the curriculum contents during this implementation. The community teachers who research and develop this local curriculum write a report that the learners are satisfied with the courses they learn with the local wisdom practitioners. The Akha language is used as the tools or instruments for communication and in other media for the developed course. The course itself is encouraging the participation among the community members in preserving the traditional costumes of the Ulo Akha Tribe. This information is confirmed with the data gathered from the interviews by the researcher.

The curriculum related to the wedding tradition of the Ulo Akha Tribe with the participation of the local communities in Ban Ayo Anamai takes 8 hours for teaching. Its curriculum structure is composed of (1) historical background of the Akha Tribe, (2) background and importance of wedding tradition of the Ulo Akha Tribe, (3) the procedures in performing wedding of the Ulo Akha Tribe, (4) plays, taboos, and other teachings during the wedding ceremonies, and (5) the guidelines to preserve the wedding traditions.

Theme 2: “Development of curriculum in preserving the costumes of Lahu Na Group through the participation of the communities at Ban Pha Mussuh, Mae Salong Nai Subdistrict, Mae Fah Luang District, Chiang Rai Province.”

The research is conducted by Teacher Jutharat Chaowiang who studies the local context and conducts interviews and inquiries with the local wisdom practitioners and the parents of the learners in the communities. After this process is done, the researcher identifies the curriculum contents and implements the curriculum to transfer the knowledge to 50 learners through the local wisdom practitioners in the communities. There is the preparation of dressing the of Lahu Na Group costumes every Friday and during the Lahu Na festivals. The parents of the learners cooperate in preparing the costumes as the samples for the young learners who are inheritors of the traditions. The community teachers who research and develop the local curriculum also reports that after the curriculum is applied the learners become proud of their own tribe costumes and they are aware for the importance of preservation of their own tribe costumes. This activity prevents the disappearance of the traditional costumes of the Lahu Na Group to be replaced by outsiders’ dressing codes. This information is affirmed with the data derived from the interviews of the researcher.

The curriculum on the preservation of the Lahu Na Group costumes with the participation of the communities at Ban Pha Mussuh takes 18 hours for accomplishment. The structure of the curriculum is composed of the topics on (1) historical background of the Lahu Na Group, (2) the characters and designs of the Lahu Na costumes, and (3) the guidelines to preserve and revive the traditional dressing of the Lahu Na Group.

Theme 3: “Curriculum development on preservation of the costumes of Lomie Akha Tribe with the participation of the community at Ban Huay Kra.”

The research is conducted by Teacher Hathaikarn Liankrua who studies the local context and interviews the local wisdom practitioners and villagers from the communities. After that the research identifies the “curriculum layout” and the

contents of the curriculum. The local wisdom practitioners are the persons who transfer the knowledge according to the constructed curriculum onto 30 learners. The participation of local communities is used in the development of the curriculum. The community teachers who launch the research and development of the local curriculum report that these learners are satisfied with learning about the costume of the Akha Tribe. The parents of the learners participate and encourage the learners to dress in Akha Tribe costumes correctly. This data is consistent with the data derived from interviews of the researcher.

The curriculum of preservation of the Akha Tribe costume spends 18 hours for teaching. The structure of the curriculum is built of the topics on (1) the historical background of Akha Tribe and each piece of their costumes, and (2) the characters of the Lomie Akha Tribe costume.

Theme 4: “Curriculum development on the Yao woven clothes by the participation of the community at Ban Lao Sib, Mae Salong Nok Subdistrict, Mae Fah Luang District, Chiang Rai Province”.

The research is conducted by Teacher Panisa Chuamuangphan who studies the context of the local communities and interviews and observes the methods of the weaving of the Yao clothes from nine local wisdom practitioners. The researcher also interviews the community leaders and the knowledgeable people in the local communities. Afterward the researcher prepares the curriculum of woven Yao clothes with the participation of local wisdom practitioners and experiments the curriculum with 10 learners. The local wisdom practitioners train these learners. There is the continuous development on the contents and teaching processes during the implementation of this experimentation. The results show that the developed curriculum can be brought to use in real situation. The community teachers who research and develop the local curriculum report that the learners are satisfied. Similarly, the local wisdom practitioners, the community leaders and parents are satisfied about the community teachers’ preparation of the curriculum of Yao-style woven clothes. It is not only the heritage of the Yao Tribe tradition but also is the source of income generation for the learners who can sell the woven clothes with Yao-style design. This data is confirmed with the data derived from the interviews by the researcher.

The curriculum of the woven clothes with Yao design settled through the participation of the local communities at Ban Lao Sib needs 30 hours for the instruction. The structure of the curriculum is composed of the topics on (1) the flower-design woven clothes, (2) the pumpkin-design woven clothes, (3) the star-design woven clothes, (4) the tiger claw-design woven clothes, (5) the woven clothes with ancient design, and (6) the woven clothes maintenance and distribution.

Theme 5: “Curriculum development on consuming the new rice of the Akha Tribe with the participation of the community at Ban Pa Kluay, Mae Fah Luang Subdistrict, Mae Fah Luang District, Chiang Rai Province.”

The research is conducted by Teacher Kriengsak Kitilue who analyzes the context of community, interviews the local wisdom practitioners, and participates in production of the curriculum. Thenceforth the local wisdom practitioners transfer the knowledge to around 35 learners in the local communities. Then these participants apply the training into the real ceremonies for the tradition of consuming new rice of the Akha Tribe. The researcher collects the data the participant observation during the

activities of the consuming the new rice of the Akha Tribe in the community at Ban Pa Kluay. The community teachers who conduct the research and develop the local curriculum report that learners are satisfied with the construction of the curriculum. The Learners understand and can apply the knowledge into use correctly and consistently as the interviews of the researchers have confirmed.

The curriculum on the tradition of consuming new rice of the Akha Tribe with the participation of the community at Ban Pa Kluay spends 12 hours for the teaching. The curriculum is structured with the topics on (1) the background of the tradition of consuming new rice, (2) the worshipping rituals before the tradition of consuming new rice, (3) the equipment used in the tradition of consuming new rice in the past and present and their preservation, and (4) the steps and methods in performing the tradition of consuming new rice.

Theme 6: “Research to prepare/make and development of curriculum on the Chinese New Year tradition with the participation of the community at Ban Huay Rai Samakki, Mae Fah Luang Subdistrict, Mae Fah Luang District, Chaing Rai Province.” The research is undertaken by Teacher Nongnuch Kongmali who analyzes the related literature and the context of the local community and interviews the local wisdom practitioners. After this preparation, the research constructs a curriculum to transfer the traditional knowledge to the learners group (35 non-formal education students and the adolescents) in Huay Rai Samakki community, which is a Chinese community. The learners understand the Chinese New Year Tradition very well. The community teachers who conduct the research and development of the local curriculum report that the learners and the local wisdom practitioners are satisfied with the constructed curriculum. This information is consistent with the data derived from the interviews by the researcher.

The curriculum for the Chinese New Year Tradition with the participation of the community at Ban Huay Rai Samakki spends some 12 hours for teaching. The curriculum is composed of the topics on (1) the historical background and the importance of Chinese New Year Tradition, (2) the steps in performing the rituals according to the Chinese New Year Tradition, (3) the important facts around the Chinese New Year Tradition, and (4) the guidelines to preserve the Chinese New Year Tradition.

Theme 7: “Research to construct and develop the curriculum on folk dance called Ten To and Fon King Ka Lah of the Shan Tribe with the participation with the community at Ban Huy Nam Khun.” This research is conducted by Teacher Palida Namnai who studies the secondary data (related literature) and the context of the local and then interviews the local wisdom practitioners. Afterwards the researcher and the community members together build a curriculum to transfer the knowledge on folk dance to around 15 adolescents in the local communities. The community teachers who conduct the research and develop the local curriculum report that the constructed curriculum is appropriate as expected by all relevant people in the communities. The curriculum can be used in the teaching and learning arrangement, and this data is consistently parallel with the interviews of the researcher.

The curriculum of folk dance called Ten To and Fon King Ka Lah of the Shan Tribe spends some 30 hours for teaching . Its curriculum structure is composed on the topics of (1) the historical background of Ten To and Fon King Ka Lah of the Shan

Tribe, (2) characteristic of the costumes used in the folk dance of Ten To and Fon King Ka Lah (3) the musical instruments used for performing the folk dance Ten To and Fon King Ka Lah (4) the dancing style of Ten To and Fon King Ka Lah.

Theme 8: “Curriculum development on the Shan language with the participation of the community at Ban Huay Peung.”

This research is conducted by Teacher Thanandorn Ruamsook who studies the context of the local communities, interviews the local wisdom practitioners, and constructs the curriculum. The researcher compares between the Shan language and the Thai language and categorize the vocabularies and grammar that are consistent the use in daily life. After preparing the curriculum then the researcher experiments and develops it further with around 25 learners. The community teachers who conduct the research and development of the local curriculum report that the result is satisfactory for both the learners and the local wisdom practitioners. This finding is consistent with the data derived from the interviews with the researcher.

The curriculum of the Shan language with the participation of the local community at Ban Huay Peung takes time around 12 hours for teaching activities. The curriculum has a structure composed of the topics of (1) the importance and background of the Shan Language, (2) conversation in the Shan Language, and (3) the comparison between the Shan language and the Thai language.

2.2.2 Result of research and development of local curriculum in the group of herbs in the local communities. The research findings show that the community teachers are interested in doing research and development of local curriculum on herbs as the next highest (20 percent of samples) with three topics as the followings.

Theme 1: “Curriculum development on conserving the local herbs in Ulo Akha Tribe communities with the participation from the communities at Ban Ayo Anamai, Mae Salong Nai Subdistrict, Mae Fah Luang District, Chiang Rai Province.” The research is conducted by Teacher Natthawat Karnkeb who analyzes the context of local community, interviews the local wisdom practitioners on herbs, and prepares the curriculum with the other participants. After that the researcher transfers the knowledge to around 20 learners on local wisdom practitioners on herbs and develops the additional content of the curriculum. The researcher also cuts out some parts of the contents as necessary to fit the real situation of the local communities. The community teachers who launch research and development of local curriculum report that the learners can learn with better understanding, and they are satisfied with the learning. The local wisdom practitioners also show satisfaction for the constructed curriculum. It is beneficial to the next generation to inherit the disappearing knowledge about local herbs of Ulo Akha Tribes. This information is consistent with the data derived from the interviews by the researcher.

The curriculum on conservation of the local herbs of Ulo Akha Tribe with the participation of the communities at Ban Ayo Anamai takes 20 hours of teaching. It has the curriculum structure composed of the topics on (1) the definition and knowledge on herbal medicines, (2) the types and characteristics of herbal medicines, (3) the qualification of herbal medicines, (4) the qualification of local herbal medicines, (5) the methods to use herbal medicines in taking care of health and

treating sicknesses, (6) the known herbs in the local community that should be preserved, and (7) the methods to preserve herbs in the local communities.

Theme 2: “Curriculum development on preservation of the local herbs of the Lahu Na Tribe with the participation from the communities at Ban Ja Thor.”

The research is conducted by Teacher Kanong Piyakham who learns the context of the local community, interviews the local wisdom practitioners on herbs, studies the related literature, and constructs a curriculum together with the other participants. The curriculum emphasizes on the qualification of each part of the herbs. Then the local wisdom practitioners transfer the knowledge to around 15 learners. These participants develop the simple contents of the curriculum. The community teachers who conduct the research and development of the local curriculum report that the learners can learn well and they are satisfied with the learning with the constructed curriculum. The local wisdom practitioners are also satisfied with the constructed curriculum because they see the benefits in the transfer of the knowledge on local herbs of the Lahu Na Group to the younger generation. This data is confirmed with the interviews of the researcher.

Conservation curriculum of the local herbs of the Lahu Na Group with the participation from the community at Ban Ja Thor spends some 15 hours for teaching. The structure of the curriculum is made of the topics on (1) the background of herbs in the communities, (2) the classification of the herbs in the communities, (3) the qualifications and methods to use herbal medicines in the communities, (4) the processes in producing herbal medicines in the community, and (5) the preservation and collection of herbs in the local communities.

Theme 3: “Curriculum development on application of herbal medicines to heal ailments with the participation from the communities of the Akha Tribe at Ban Pasang Soong Village.”

The research is done by Teacher Thaweesak Saejen who studies the related literature and the context of the community, interviews the local wisdom practitioners on herbs, and arranges the curriculum that focuses on the identifications for all parts of herbs, including the methods for treating of an ailment. This knowledge is transferred to about 15 learners by the local wisdom practitioners, along with the development on the contents of the curriculum. The community teachers who conduct research and development of the local curriculum report that the learners are satisfied with the learning with the local wisdom practitioners. The local wisdom practitioners are also satisfied with the constructed curriculum because they perceive the benefits in distributing the knowledge for the learners who can apply the herbal medicines to treat ailments. This data is consistent with the interviews by the researcher.

The learning of using the herbs in treating ailments with participation of the communities at Ban Pasang Soong spends the teaching time for 12 hours. The curriculum structure is composed of the topics on (1) the basic knowledge on local herbs, (2) the characteristics of herbal medicines, (3) the identification of herbal medicines, and (4) the methods to use herbs in the community to treat ailment.

2.2.3 Result of research and development of local curriculum on the environment of the local communities. This research shows that the community

teachers are interested in research and development of local curriculum on the environment (13.33 percent of the samples) on two themes as the followings.

Theme 1: Curriculum development on management of the risk of soil erosion with participation with villagers at Ban Pha-bue, Mae Fah Luang Subdistrict, Mae Fah Luang District, Chiang Rai Province.

The research is conducted by Teacher Sopin Kunama who studies the related literature and the context of the community, interviews the community leader and villagers and other relevant people who have knowledge on the prevention of soil erosion by using the participatory process. The participants analyze the causes of soil erosion in the community, find the possible solution, and prepare the local curriculum. The arrangement for the learning process is set for 10 community members who are willing to participate in preventing the soil erosion. The community teachers who conduct research and development of local curriculum report that all participants are aware about the prevention of the soil erosion and they are satisfied with the constructed curriculum. The curriculum is beneficial for the communities and this information is confirmed with the data derived from the interviews by the researcher.

The curriculum on the management of soil erosion with the participation of the villagers at Ban Pha-bue takes nine hours for the teaching. The curriculum is structured as composed of the topics on (1) the importance of soil erosion problems, (2) the impact of soil erosion, (3) the prevention methods and solutions for soil erosion.

Theme 2: “Curriculum development on water management for consumption with participation of Ban Mae Poen.”

This research is conducted by Teacher Pattama Pathapim who studies the related literature and the context of the community and interviews the community leaders and villagers. Then the participants hold meetings, consultations and production of guidelines for water management for home consumption. The researcher makes a local curriculum and arranges the learning process for 10 community members. The community teachers who conduct research and development of local curriculum report that the curriculum creates community cooperation in the water management, builds harmony in the communities, and satisfies the community members. This data is consistent with the interviews by the researcher.

The curriculum on water management for home consumption with participation from Ban Mae Poen takes nine hours for the teaching sessions. The curriculum is composed of the topics on (1) the basic knowledge on water circulation, (2) the problems and guidelines to solve problems on water consumption, and (3) the water management for proper consumption.

2.2.4 The results of research and development of local curriculum on the group of agriculture in the local communities. This research shows that the community teachers are interested in doing research and development of local curriculum on agriculture (13.33 percent of samples) on two topics as what follows.

Theme 1: “Curriculum development on planting tea with participation from the local communities at Ban Hua Mae Kham.” The research is conducted by Teacher Chumpol Liankrua who studies the context of the community, interviews the local wisdom practitioners on planting tea, and produces a curriculum together with the participants. After these processes, the local wisdom practitioners on tea planting

transfer their knowledge to around 15 learners through the contents consistent with the community context. The community teachers who conduct research and development of local curriculum report that the learners can learn with better understanding and they are satisfied with the learning given by the local wisdom practitioners. They are satisfied with the constructed curriculum that is consistent with the data derived from the interviews by the researcher.

Curriculum of planting tea with participation of the local communities at Ban Hua Mae Kham spends around 15 hours for the teaching sessions. The curriculum is composed of the topics on (1) the types of tea and their propagation methods, (2) the methods of planting tea and the tree management, and (3) the harvesting methods of the yields and tea leaf preservation.

Theme 2: “Curriculum development on raising the native pigs with participation of the local communities at Ban A-lae, Mae Salong-nai, Mae Fah Luang District, Chiang Rai Province.”

The research is conducted by Teacher Khwanchai Jai-inta who studies the context of community, interviews the local wisdom practitioners on raising the native pigs, and participates in making the curriculum. After these steps the local wisdom practitioners on raising the native pigs transfer their knowledge to around 20 learners. The development of the curriculum contents is ongoing continuously. The results show that the curriculum on raising the native pigs of the communities at Ban A-lae can be used in real situation and the contents are sufficiently covered. The community teachers who conduct the research and development of local curriculum report that the learners are satisfied with the curriculum contents. They also gain a very good learning achievement. The community members participate in developing the curriculum in all steps, starting from the surveys to the implementation of the curriculum and the interviews to consistently check with the data derived from the interviews by the researcher.

The curriculum of raising native pigs with participation of the local communities at Ban A-lae requires 15 teaching hours. The curriculum structure is composed of the topics on (1) the feeds for the native pigs, (2) the proper places for raising the native pigs, and (3) the sanitation of the native pigs.

The result of analysis shows that the format of the curriculum as the whole picture as decided by the community teachers for their curriculum is composed of front cover, introduction, the contents that show contents in order (context of the communities, explanations about the curriculum, curriculum goals, curriculum structure, curriculum objectives, areas of curriculum contents, the plan to arrange the teaching and learning activities, and illustrations). There are also the lists of publisher of teams who arrange plan for the teaching and learning activities in the classrooms (composed of topics, objectives, principles, contents, teaching and learning processes, materials/media, period of time, evaluation methods and the persons who transfer knowledge), and the researcher presents the samples of local curriculum, which is the results of the community teachers' endeavor.

2.3 The participants' opinions and feelings toward the participation in this research

2.3.1 Opinions of the community teachers

The analysis of opinions of the community teachers shows that the community teachers share positive opinions toward the learning process. In this research they see that their development work in the communities is beneficial wherever the community teachers perform their tasks. This perception makes them know the communities better where they perform their tasks. These community teachers participate in the learning process related to the local knowledge that is valuable from the practice of local wisdom practitioners in the communities. They are proud to be able to do research and development of local curriculum by themselves. They have chances to change the learning together with their peers in the local communities. This sharing of learning creates harmony in working in the groups of community teachers. Some of the community teachers hold opinion that it is beneficial for the study in a higher level. They have positive attitude toward doing research and development of local curriculum, which is beneficial and is not beyond their capacity to grasp. Nevertheless some of the community teachers reveal their negative opinions that research and development of local curriculum consumes a lot of time because there are interferences that necessitate adjustment of the plan often times. A considerable amount of time appears as wasted. Besides, these teachers have other urgent duties to fulfill. For example, they cannot concentrate in writing the research reports.

2.3.2 Opinions of the local wisdom practitioners

The analysis of the opinions of the local wisdom practitioners shows that they are proud to be parts of the transfer of knowledge to the learners in the local communities. They are glad that the government organizations give importance on the local community issues. This interest may induce the villagers in the local communities especially the adolescent to be aware and interested in their own cultural practices. They are impressed by the community teachers' attempts to honor the local wisdom practitioners. The community teachers are also impressed to see the local learners' interests and full attention in their learning about the knowledge transferred by the local wisdom practitioners. The learning villagers want to keep this activity continuously and they like to see their own pictures in the books (research reports and the development of local curriculum by the community teachers).

2.3.3 Opinions of the learners

The analysis of the opinions of the learners shows that the learners have built a positive attitude in learning the local curriculum that the community teachers have produced. They also participate in these activities because the topics are their interests and they enjoy learning outside of the classroom with the local wisdom practitioners in the local communities. They have chances to practice and they are proud to learn from the local wisdom practitioners in the local communities. The learners want this activity to be arranged again.

2.3.4 Opinions of the researcher

The researcher has opinion that the research process is not only the learning of the community teachers, local wisdom practitioners and the learners who create the learning process together in the communities but also the training for the researcher to learn about valuable things in the communities. The presentations of the community teachers during each session of the seminars, including the evaluation in the communities, are the valuable things. The researcher feels proud to be part of the construction of a good learning process. The researcher admires the community

teachers who are willing to create the local curriculum in the local communities and feels astonished that many community teachers invest their resources on notebook computers, digital cameras, or video digital cameras to use in this research. It is very gleeful to see the changes in the teaching and learning arrangement of the community teachers who are giving importance to the local wisdom practitioners. In addition, the researcher creates more learning in several ways using both technical knowledge on doing research and development of local curriculum and the application of the constructionism theory learning process integrated with the participatory action research to develop work in the non-formal education centers. And most importantly is the better attitude toward the models and patterns of educational administration.

The researcher as an administrator has a clear opinion that the development of national education requires the enhancement of the administrators into higher levels in skills as the learning facilitators. Better administrators affect the arrangement of the learning process as much as the quality of teachers will affect the learners. When the researcher as the administrator also works as the facilitator continuously in this research, the observation shows that the community teachers are creative in building activities that bring benefits to the learners in the local communities. Besides, the local curricula that the community teachers and the community members create and develop increase the acceptance of the community teachers by the communities and relevant people. This acceptance affects the community teachers who can develop fully to their full potentials. Wherever there is the transfer of school administrator, the researcher as the school administrator applies this process into the new educational institution. It shows that the community teachers are aware in doing learning activities, giving importance to the communities, and thinking more creatively about working together. This achievement influences the development of the work as the whole picture and it brings forth the acceptance of the educational quality assessment under the standard certification of ONESQA (the Office for National Educational Standard and Quality Assessment) with the highest score compared with the other non-formal educational centers of districts in Chiang Rai Province assessed at the same time. The previous educational institution in which the researcher served as the administrator participated with the community teachers had requested the assessment from ONESQA. This request, however, was withdrawn by the new administrator, who assigned himself as the new administration based on authority as the member of the committee of transfer. Furthermore, the community teachers were no longer encouraged to continue with research and development of local curriculum. This phenomenon shows how the administrative factors can affect the works in development of abilities of the community teachers.

2.3.5 Opinions of the relevant people

The analysis is done on the opinions of the relevant people composed of the community leaders, villagers and the personnel from the organizations who are relevant to the communities where the community teachers conduct the research and development of local curriculum. The results show that the relevant people agree that the community teachers' arrangement to have the teaching and learning on the topics familiar within the local communities by inviting the local wisdom practitioners and the knowledgeable people in the communities are very positive. This arrangement preserves the disappearing good cultural practices in the communities. Nowadays the younger generation is no longer interested in the original culture of their own

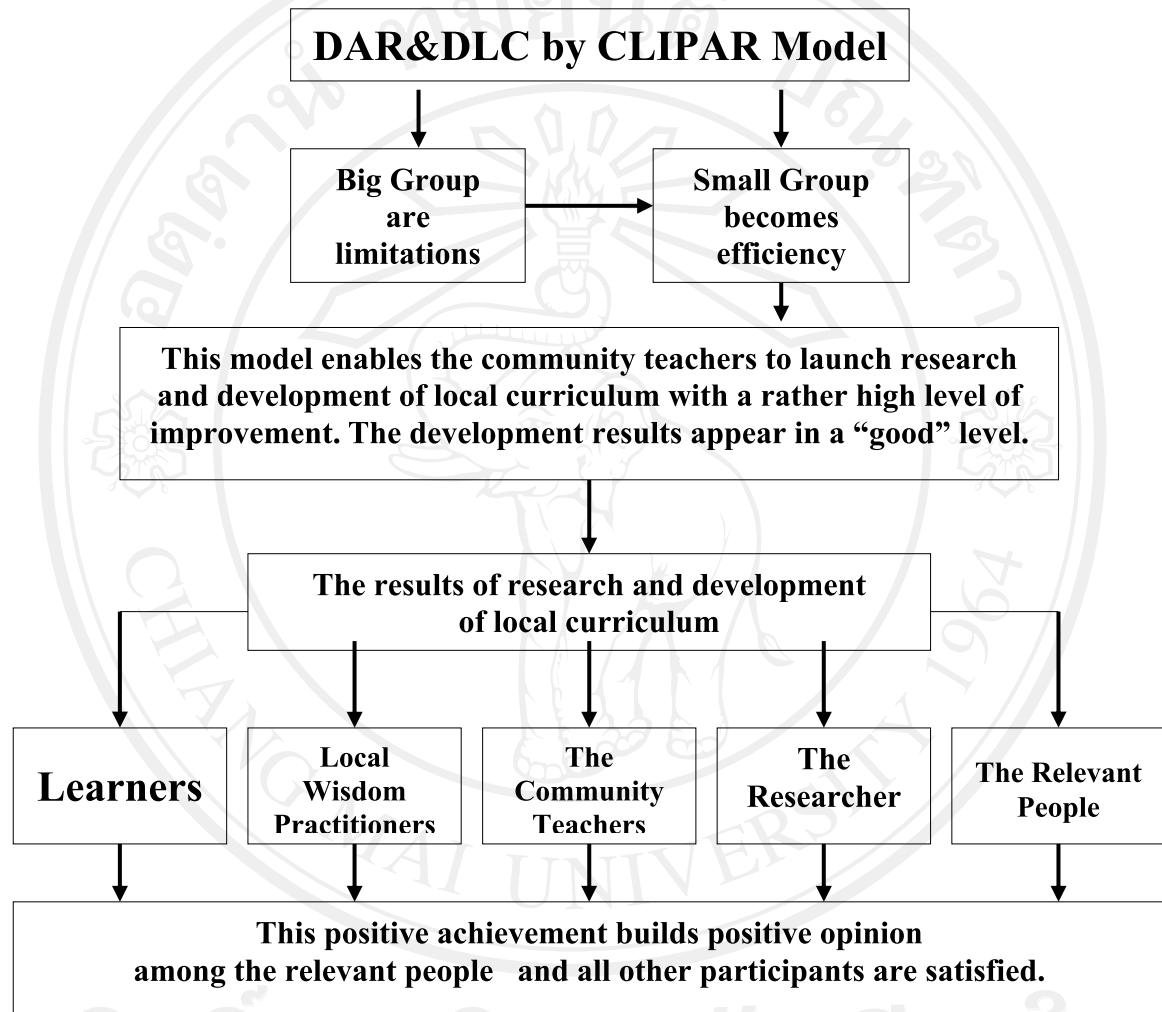
communities, especially on the costumes, traditions, plays, etc. The knowledge about medicinal herbs, for example, is circulating mainly around the aging local wisdom practitioners who have nobody to be the knowledge inheritor. The knowledge is likely to vanish when they pass away. The community leaders and villagers are proud that the government sectors and organizations show interest and acceptance for the cultural practices and knowledge on medicinal herbs of the tribal groups and arrange curricula to teach their younger generation. Mr. A-kong Mayeu from Ban Pasang Soong, Terd Thai Subdistrict acknowledged that, “It is very good to teach students to know about herbs because now the villagers are not very interested in the medicinal herbs.” One villager said that, “In the past, when villagers fell sick, they sought for herbs to heal their sickness.” “But now,” he continued, “Whatever sickness they feel, they go to the market and buy the painkiller to take.” “There was an officer ... said that our herbs are not safe, illegal, and thus not allowed to be used to heal ourselves”. The villagers were obviously afraid. But this villager shows deep gratitude to the community teachers the teachers trust the villagers to teach their children to know about the herbs of Akha (Akha Tribe).

For the original agricultural practices, the leaders and the villagers, including the District Agricultural Extension Officer, think that it is a good thing to preserve. The community teachers create a local curriculum with the local wisdom practitioners. Especially Mr. Ruangchai Monkoldee, who is Mae Fah Luang District Agricultural Extension Officer, and the other Agricultural Officers who participate in listening to the presentation of research and development of local curriculum by the community teachers said a compliment that, “The results of works that the teachers present are interesting, very useful and worthy some support”. Besides the opinion on support and admiration, the Mae Fah Luang District Agricultural Extension Officer donate three pig (breeders for the cold weather) to be raised on the mountain for the community teachers that they can breed piglets to distribute among the villagers.

On the environmental issues, the relevant people who are the community leaders, villagers and the environmental personnel agree that the community teachers’ joining hands with the villagers to build the curriculum on environment because they can help taking care and prevent the soil erosion problems. This problem is crucial for the villagers, including the solutions the problems on water consumption that is the sensitive issue to the villagers. These issues are representing the most occurring problems on the mountain in the North of Thailand. Therefore, it is necessary for all relevant people to support one another because the environmental staff numbers are limited and they can’t take care of everything. One officer said that, “It’s very good that the teachers make the curriculum on the environment to teach the villagers so that they can help solving their own problems. If they just wait for others to help, sometimes the help is not on time. Then the villagers usually will put the blame on the officers.”

In addition, Mrs. Rujira Jaijak, Head of Mae Salong Nai Subdistrict Administrative Organization expresses opinion that, “Preparing the local curriculum is very useful for the community and it deserves to support the implementation extensively. It should be expanded into the school in the system because the majority of the children are in the school.”

Figure 12 Conclusion of the Whole Picture of the Result Analysis



After analyzing as the whole picture, this study can conclude that when the DAR&DLC by the CLIPAR Model are used with the big group, there are some limitations related to the time consumption and failure to facilitate all learning sessions. When used in the small group, the Model becomes efficient, more flexible and spends less time with the learning sessions can be facilitated thoroughly. This model enables the community teachers to launch research and development of local curriculum with a high level of improvement. The development results appear in a "good" level. The results of research and development of local curriculum in all topics utilize the participation process. The majority of the learning takes place on the cultural practices. The rest are on medicinal herbs, agricultural practices and the environmental management. Such results are consistent with the contexts of the local communities. The positive achievement of the research and development of local

curriculum of the community teachers that gave rise to use for the local communities builds positive opinion among the relevant people and all other participants are satisfied.

There are some essential components that correlate with DAR&DLC by CLIPAR Model. They are composed of the context of the local communities, the needs of the learners, the learning facilitators (Facilitator), the reflection from the communities and the community teachers. The voices from the local communities should be consistent with their own contexts. And the voices from the community teachers should be consistent with the demand of the learners. It is necessary to accomplish the preliminary surveys to check the basic situation before the preparation to exchange the learning according to the CLIPAR Model. During the development, the evaluation must also be done simultaneously to improve the development steps through the creation of the facilitating climate for learning, the main factors being the learning media. In all steps the learning would emphasize on the participatory process and on the learning along the actual practices. The implementation will be integrated continually.

The important factors, which affect to the development on abilities in research and development of local curriculum of the community teachers, are the situation in the communities related to creating the facilitating climate for the learning. The interference factors also appear to affect the results of the works of the community teachers, especially the factors related to educational administration and roles of the administrators. When the administrators act as learning facilitators, they highly influence the development of the community teachers in positive manners. Besides, these administrators begin to using participation in all steps and the learning designs in order to create the learning along with working out all the steps. This combination creates better learning with such power that leads the community teachers to learn about the method of learning by themselves and can create the task continuously. It is an important factor that affects the development of community teachers' abilities in research and development of local curriculum.

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