# Chapter 3

## Research Methodology

In this study entitled “Evaluation Model for Teachers’ Roles to Promote Lifelong Learning Skills of Students at the Basic Education Level” employed the research process as Research and Development which the process can be divided into three stages and each stage is considered in coordinate with the research objectives. The three stages are as follows.

Part 1 Analyzing factors and indicators of teachers’ roles in promoting lifelong learning skills of students at the basic educational level

Part 2 Developing the evaluation model for teacher’s roles to promote Lifelong Learning skills of students at the basic educational level

Part 3 Testing and finding quality of evaluation model for teacher’s roles in promoting lifelong learning skills of students at the basic educational level

The conceptual framework of research process in overall image and in details is shown in the figure 3.1 below (Figure 3.1).

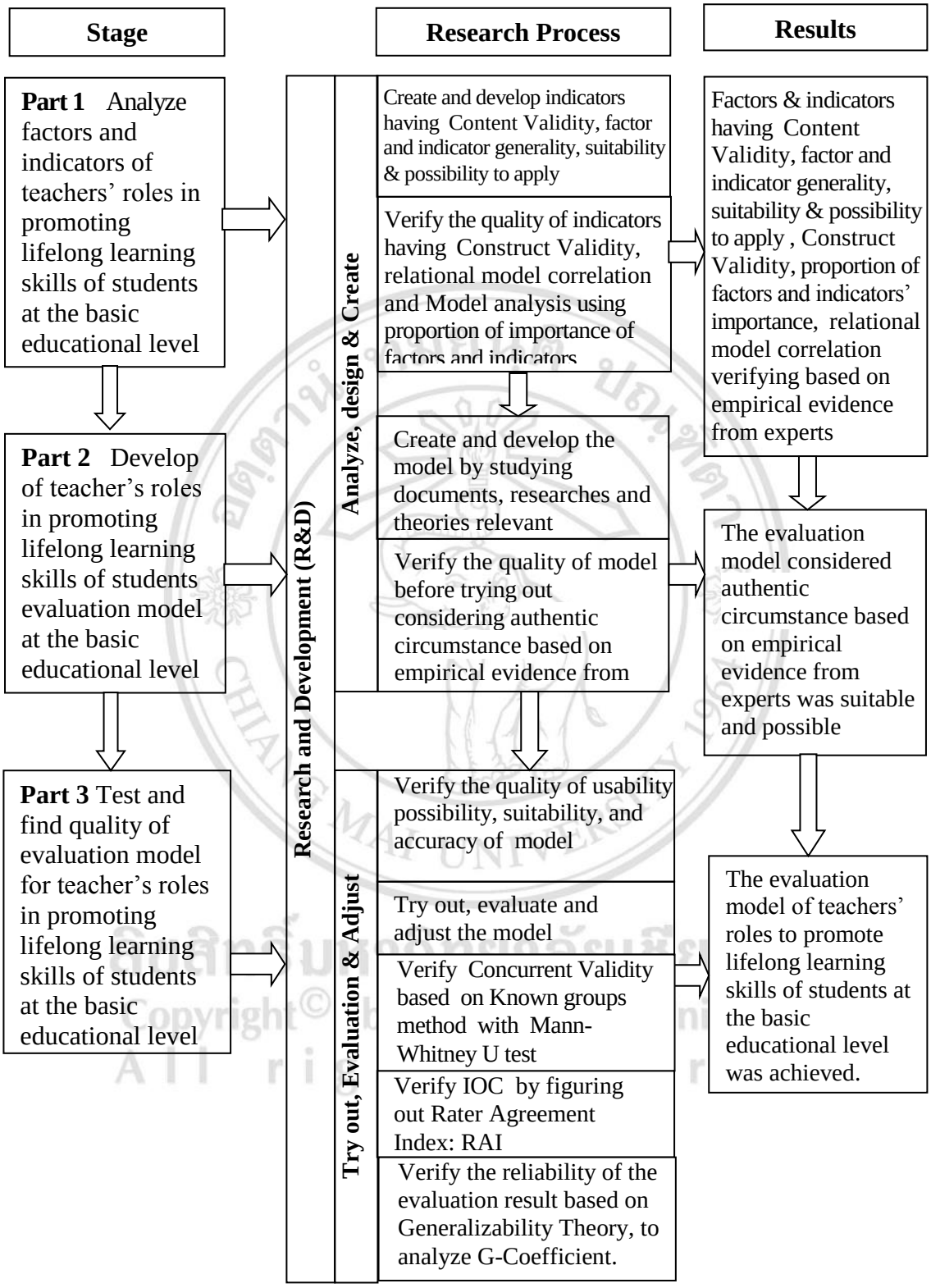


**Figure 3.1** The conceptual framework of research process in overall image

**Part 1** Analyzing factors and indicators of teachers' roles to promote lifelong learning skills of students at the basic educational level

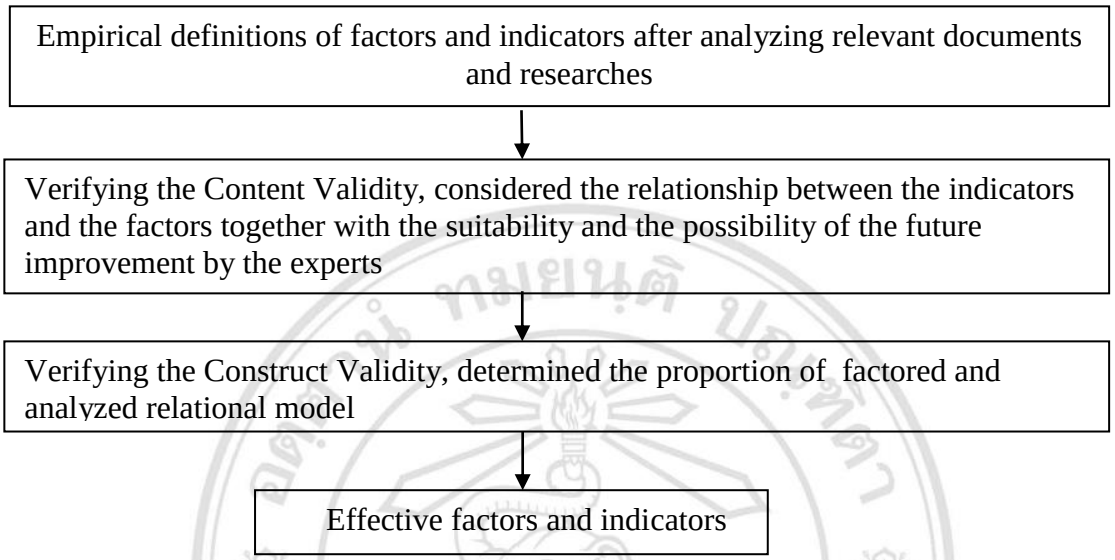


**Figure 3.2** Details in the 1st part of research process was to analyze factors and indicators to promote lifelong learning skills of students at the basic educational level

**Part 1 Analyzing factors and indicators of teachers' roles to promote lifelong learning skills of students at the basic educational level**

In analyzing factors and indicators of teachers' roles to promote lifelong learning skills of students at the basic educational level**,** the researcher applied Four Step Approach of Modeling created by Mulaik & Millsap (2000) into the analysis of factors, indicators and Structural Equation Modeling (SEM). The first step of this modeling was to analyze the Exploratory Factor; the second step was to verify the measurement model. As the third step was to verify the latent variable and the last step was to analysis of Structural. Equation Modeling. In the study, the researcher combine those into two main steps: the first and the second step were gathered to be a step of Exploratory Factor Analysis while the last two became the step of verifying of Model validity and model correlation by analyzing relational model. The detail are as follows:

**Research Process**

**1. Creating indicators**

1.1 Study data and information from relevant resources such as documents, journals and notion regarding teacher's roles to promote Lifelong Learning skills, concept of indicators development in evaluation and other research involved.

1.2 Synthesize the information of factors and indicators regarding teacher's roles to promote Lifelong Learning skills by using content analysis technique. The synthesis can consist of six factors together with 41 indicators which are ( 1) 11 indicators regarding teacher's roles in learning management (2) 6 indicators in assisting and motivating (3) 5 indicators in learning management (4) 5 indicators in classroom management (5) 5 indicators in following up, verifying and evaluating (6) 9 indicators in teacher's characteristic and 13 indicators in Lifelong Learning skills. The data is in Table 2.3 (page 29).

1.3 Create a relational model of factors and indicators regarding teacher's roles to promote Lifelong Learning skills by synthesizing document and research relevant. (Figure 2.1 page 41)

**2. Verifying indicators can be in the following process**

**2.1 Verifying the Content Validity**

2.1.1 Ask the expert to consider the factors and indicators synthesized in the first step regarding the factor correlation to its definition identified and Propriety and Feasibility possibility to improve then. Revise the language at last.

2.1.2 Creating the instrument and collecting data

2.1.2.1 Create the survey about the indicator regarding teacher's roles to promote Lifelong Learning skills by considering the variables of six factors with 41 indicators and 13 indicators regarding Lifelong Learning factors.

2.1.2.2 Verifying the indicator regarding teacher's roles to promote Lifelong Learning skills in the survey in regard to content validity by seven experts (Appendix A page 241). Two experts are specialized in educational evaluation, three are in educational management and the last two are Lifelong Learning skills. They all have the doctorial degree in education and have at least five year experience in being educational experts or having academic reports relating to Lifelong Learning. Those consider the indicators synthesized from the documents, journal about ideas, theory and

relevant research which all involved with factor correlation defined and the Propriety and Feasibility to apply. Languages are revised at last.

2.1.2.3 Analyze the consideration of the experts. It is found out that the Index of Item Objective Congruence (IOC) was between 0.86-1.00. It indicates that all indicator had the correlation of the indicators as in defined. Also, the average of indicators involving Propriety and Feasibility to improve was between 4.29-5.00. This indicates that Propriety and Feasibility to improve of the indicators were qualified. The suggestion from the experts involving the language uses was nine indicators including the indicator 4.1 and 4.2. According to the experts' consideration, six factors together with 41 indicators regarding the teacher's roles to promote Lifelong Learning skills and 13 indicators relating Lifelong Learning skills were considered; however, six factors with 40 indicators regarding the teacher's roles to promote Lifelong Learning skills and 13 indicators relating Lifelong Learning skills were qualified.

2.1.2.4 Verify the reliability of the survey regarding teachers' roles to promote lifelong learning skills of students at the basic educational level by trying out with 30 teachers from a year of 2000 good teaching list (cannot be the sampling group) by employing Cronbach's Apha Coefficient with the reliability at 0.98.

**2.2 Analyze the model correlation of factors and indicators regarding teachers' roles to promote lifelong learning skills of students at the basic educational level and verify the model correlation with Empirical data. The process is as follow:**

2.2.1 Create the second set of survey, the survey of Construct Validity by considering from factors and indictors which is already revised from the experts.

2.2.2 Employ the second survey to 550 teacher in the sampling group to verify the Construct Validity.

2.2.3 Analyze the data to verify the Construct Validity, determine the proportion of importance of each indicator, verify the Feasibility to proceed by analyzing from the indicators selected with qualifying Construct Validity at Factor Loading exceeds .30 (Sombat Tayreukam, 2553, page 20-21)

2.2.4 Analyze the model correlation of factors and indicators regarding teachers' roles to promote lifelong learning skills of students at the basic educational

level which was from the synthesizing relevant documents and researches with Empirical data.

**Population and Samples**

Because there are a lot of teacher in Thailand, only 9,004 teachers from a year of 2000 good teaching list of Quality Learning Foundation Governing Dynamics would be selected.

**Sample group**

The samples employed were as follows.

The samples employed in verifying the construct validity were 550 teachers who was qualified as being teachers from a year of 2010 good teaching list of Quality Learning Foundation Governing Dynamics. In this selection, those teachers' qualifications were similar to the teachers' roles to promote Lifelong Learning skills. For those being a good teaching teacher would be considered as follows (Quality Learning Foundation (QLF), 2554, page 16-17).

1) Provide good learning process

1.1) The teacher needs to develop content and learning process continuously, providing both in and out class learning process by emphasizing the suitable process for learners and solving problems about the learner's difference are needed. Also, the teacher can design an effective learning method, follow up the students' progress and improve them constantly, and change the students' attitude to be positive, be happy in learning and have an inspiration to seek additional knowledge.

1.2) The teacher needs to improve themselves continuously, be a good role model in seeking knowledge both out of class and in other learning resources including with learning from other people at all age. The teacher needs to be open for public to participate in learning management. Support their teaching achievement to support students' learning success and gain a better job and have a happy lifestyle. Be a good role model and a good respect for students, colleagues and communities.



**Random Sampling was as follows**

1. 486 people were determined the sample size used by using program G*Power 3.1.5 (Faul et al, 2007). Many concepts created by scholars were employed in this study, for instance, Sombat Tayreukam stated that sample group should have more five to ten times variable (2013, 116) while Nonglak Wiratchai said sampling should be employed

as 10-20 times of variables (1999, page 311). Also, one of the scholars, Comery & Lee concluded that 500 samples should be employed (1992, 88). Therefore, the researcher integrated all concept of these scholars to determine the sample size by applying 10 times of variables in factor and model analysis. Thus, there were 53 variables in the study and the researcher increase 10 percent of response rate to 486 people. All in all, the suitable sample size employed in this study would be 550 people.

2. Random Sampling as Two - Stage Sampling was as follows.

2.1 The first step of Stratified Random Sampling was to create the generality of sample group which stratify to six region: northern, north eastern, central, eastern, western and southern part. This was divided according to Educational Service Areas by Office of the Basic Education Commission. Using tables in determining sample groups was in accordance with Taro Yamane (1960) who limited Confidence level at 95% to choose samples from each region at random. Thus, 34 provinces could be employed as construct validity samples in this study and also verified the relational model correlation as Table 3.1.

**Table 3.1 Population and samples employed to collect the data of survey**

| Region | Population (Province) | Samples (Province) In verifying Construct Validity (Exploratory Factor Analysis) | Samples (Province) In verifying the correlation of LISREL |
|---|---|---|---|
| Northern | 9 | 4 | 4 |
| North- Eastern | 20 | 9 | 9 |
| Central | 22 | 10 | 10 |
| Eastern | 7 | 3 | 3 |
| Western | 5 | 2 | 2 |
| Southern | 14 | 6 | 6 |
| **Total** | **77** | **34** | **34** |



2.2 After getting 34 provinces from Sample Random Sampling employing 9,004 teachers from a year of 2000 good teaching list, the researcher determines the proportion of 550 samples. As well, more required surveys were sent in order to get response as determined. The details are in Table 3.2-3.3

**Table 3.2** Number and percent of samples in collecting survey to Construct Validity (Exploratory Factor Analysis)

| Region | Province | Population (person) | Samples employed to collect data (person) | A number of survey returned number (percent) |
|---|---|---|---|---|
| Northern | Chiang Mai | 558 | 34 | 34 (100) |
| | Chiang Rai | 375 | 23 | 23 (100) |
| | Lamphun | 136 | 8 | 8 (100) |
| | Payao | 150 | 9 | 9 (100) |
| North- | Chaiyaphum | 329 | 20 | 20 (100) |
| Eastern | Udon Thani | 468 | 29 | 29 (100) |
| | Khon Kaen | 581 | 35 | 35 (100) |
| | Nakhon Phanom | 203 | 12 | 12 (100) |
| | Roi Et | 411 | 25 | 25 (100) |
| | Si Sa Ket | 434 | 27 | 27 (100) |
| | Surin | 363 | 22 | 22 (100) |
| | Yasothon | 224 | 14 | 14 (100) |
| | Maha Sarakham | 288 | 19 | 19 (100) |
| Central | Nonthaburi | 284 | 17 | 17 (100) |
| | Pathum Thani | 229 | 14 | 14 (100) |
| | Phra Nakon Si Ayutthaya | 239 | 15 | 15 (100) |
| | Nakhon Sawan | 302 | 18 | 18 (100) |
| | Sukhothai | 171 | 10 | 10 (100) |
| | Phisanulok | 260 | 16 | 16 (100) |
| | Nakhon Pathom | 262 | 16 | 16 (100) |
| | Samut Sakhon | 105 | 6 | 6 (100) |
| | Saraburi | 179 | 11 | 11 (100) |
| | Nakhon Nayok | 92 | 6 | 6 (100) |
| Eastern | Chon Buri | 431 | 26 | 26 (100) |
| | Trat | 64 | 4 | 4 (100) |
| | Rayong | 182 | 11 | 11 (100) |
| Western | Ratchaburi | 256 | 16 | 16 (100) |
| | Kanchnaburi | 221 | 13 | 13 (100) |
| Southern | Phuket | 109 | 7 | 7 (100) |
| | Krabi | 141 | 9 | 9 (100) |
| | Ranong | 53 | 3 | 3 (100) |
| | Songkhla | 516 | 32 | 32 (100) |
| | Trang | 203 | 12 | 12 (100) |
| | Phatthalung | 185 | 11 | 11 (100) |
| | **Total** | **9,004** | **550** | **550 (100)** |

**Table 3.3** Number and percent of samples in relational model analysis of factors and indicators regarding teacher's roles to promote Lifelong Learning skills

| Region | Province | Population (person) | Samples employed to collect data (person) | A number of survey returned number (percnet) |
|---|---|---|---|---|
| Northern | Phrae | 156 | 11 | 11 (100) |
| | Nan | 170 | 12 | 12 (100) |
| | Lampang | 239 | 16 | 16 (100) |
| | Mae Hong Sorn | 82 | 6 | 6 (100) |
| North- | Nakhon Ratchasima | 745 | 50 | 50 (100) |
| Eastern | Ubon Ratchathani | 542 | 37 | 37 (100) |
| | Buri Ram | 442 | 30 | 30 (100) |
| | Sakon Nakhon | 326 | 22 | 22 (100) |
| | Kalasin | 325 | 22 | 22 (100) |
| | Loei | 196 | 13 | 13 (100) |
| | Nong Khai | 160 | 11 | 11 (100) |
| | Amnat Charoen | 107 | 7 | 7 (100) |
| | Mukdahan | 114 | 8 | 8 (100) |
| Centralr | Kamphaeng Phet | 211 | 14 | 14 (100) |
| | Chai Nat | 97 | 7 | 7 (100) |
| | Phichit | 166 | 11 | 11 (100) |
| | Phisanulok | 260 | 18 | 18 (100) |
| | Phetsanulok | 288 | 19 | 19 (100) |
| | Lop Buri | 243 | 16 | 16 (100) |
| | Samut Prakan | 279 | 19 | 19 (100) |
| | Sing Buri | 81 | 5 | 5 (100) |
| | Ang Thong | 91 | 6 | 6 (100) |
| | Uthai Thani | 99 | 7 | 7 (100) |
| Eastern | Chanthaburi | 151 | 10 | 10 (100) |
| | Chachoengsao | 199 | 13 | 13 (100) |
| | Prachin Buri | 153 | 10 | 10 (100) |
| Western | Tak | 150 | 10 | 10 (100) |
| | Phetchaburi | 156 | 11 | 11 (100) |
| Southern | Chumphon | 150 | 10 | 10 (100) |
| | Yala | 149 | 10 | 10 (100) |
| | Trang | 202 | 14 | 14 (100) |
| | Nakhon Si Thammarat | 479 | 32 | 32 (100) |
| | Phangnga | 76 | 5 | 5 (100) |
| | Satun | 105 | 7 | 7 (100) |
| | **Total** | **7,389** | **500** | **500 (100)** |

**Research Instruments**

The research Instruments were divided into three sets as follows.

The first set of research instruments was the survey to ask the experts' ideas in considering the qualified research instruments.

The second set of research instruments was to verify the construct validity (Exploratory Factor Analysis): the survey of the indicator regarding teacher's roles to promote Lifelong Learning skills. (Appendix B page 248)

The third set of research instruments was to verify the relational model of LISREL 8.72: the survey of the indicator regarding teacher's roles to promote Lifelong Learning skills. (Appendix B page 248)

**Data Collection**

Asking for data collecting, the researcher sent a mail from Faculty of Education, Chiang Mai University to the sampling groups to ask for participation in doing the survey, put it in the envelop attached, and send back to the researcher at the address given.

**Data Analysis**

1. Data analysis and statistics generated to verify the survey reliability regarding teacher's roles to promote Lifelong Learning skills were as follows.

1.1 Criterion in multiple choice answers and point specifying in considering whether the indicators are correlate with the factors defined or not were as follows.

| | | |
|---|---|---|
| 1 Point | indicates | the indicators correlate with factors defined |
| 0 Point | indicates | the indicators uncertainly correlate with factors defined |
| -1 Point | indicates | the indicators do not correlate with factors defined |

1.2 Criterion in multiple choice answers and point specifying in considering whether the indicators are suitability and possibility to improve were as follows.

| | | |
|---|---|---|
| 5 Point | indicates | strongly agree that the indicators have Propriety and Feasibility in applying |
| 4 Point | indicates | agree that the indicators have Propriety and Feasibility in applying |

3 Point indicates uncertainly agree that the indicators have Propriety and Feasibility in applying

2 Point indicates disagree that the indicators have Propriety and Feasibility in applying

1 Point indicates strongly disagree that the indicators Propriety and Feasibility in applying

1.3 Analyze correlation by using Item-Objective Congruence : IOC which was figuring out by

$$IOC = \frac{\sum R}{N}$$

$\sum R$ means total scores of the experts' ideas

N means numbers of experts

Criteria used in Item-Objective Congruence (IOC) must be over 0.50 (Pitsanu Fongsri, 2012, 155) which is considered that indicators correlate with the factors defined.

1.4 Verifying the Propriety and Feasibility of the indicators in each factor considered means as rubric specified

The average over 3.50 means the indicator has propriety and feasibility

Less or equally 3.50 means there is no propriety and feasibility in that indicator

2. Verifying construct validity of indicator in each factor by Exploratory Factor Analysis using Statistic Program in considering criterion. Therefore, the construct validity of indicator in each factor considering Factor Loading as criterions specified was Factor Loading over .30. This means that that indicator includes construct validity. However, it got less or equally 3.50 , it means that there is no Propriety and Feasibility in that indicator (Sombat Tayreukam , 2010, p. 20-21)

3. Verifying relational model of factors and indicators regarding teacher's roles to promote Lifelong Learning skills which was originally from synthesis documents and researches relevant and Empirical data. This analyzed Linear structural relationship by using LISREL and verify relational model correlation. Then it was analyzed and verified by Chi-Square Statistics, Goodness of fit index (GFI), Adjusted Goodness of fit index (AGFI), Root Mean Square Resident (RMR) and Root Mean Square Error of Approximation (RMSEA).

4. Verifying the agreement of relational model was as follows. (Sombat Tayreukam, 2010, page 231-232)

4.1 Chi-Square Statistics was to test the hypothesis of relationship of function whether its value was at zero. It can be stated that Chi-Square Statistics was extremely high or fitting function was significantly diversified. That is relational model was not consistent with empirical data. On the other hand, if the Chi-Square Statistics is low or the value is almost zero, it means relational model agrees with empirical data.

4.2 Goodness of fit index (GFI) was the ratio of the difference of fitting function before and after adjustment. If the GFI value is almost at 1.00 or approximately over 0, it means that relational model agrees with empirical data.

4.3 Adjusted Goodness of fit index (AGFI) was the adjustment of the GFI value and was considerate the Degree of Freedom, a number of variables, and the size of samples. If the AGFI value is almost at 1.00 or approximately over 0.90, it means that relational model agrees with empirical data.

4.4 Root Mean Square Resident (RMR) was the radicand of the average of the quadratic portion. If the RMR value is almost zero or less than 0.20, it means that relational model agrees with empirical data.

4.5 Root Mean Square Error of Approximation (RMSEA) was the value of the disagreement of relational model which was created with the matrix of sample Covariance. If the RMSEA value is less than 0.05, it indicates that there is the Close Fit. The good value and the agreement of relational model and matrix of sample Covariance should not be over 0.08.



4.6 Criterion in consideration of Correlation Coefficent (r) was interpreted as follows:

| | | |
|---|---|---|
| ± 0.81 to ± 1.00 | indicates | Very High |
| ± 0.61 to ± 0.80 | indicates | High |
| ± 0.41 to ± 0.60 | indicates | Moderate |
| ± 0.21 to ± 0.40 | indicates | Low |
| ± 0.00 to ± 0.20 | indicates | Very Low |

**Part 2 Developing the evaluation model for teacher's roles to promote Lifelong Learning skills of students at the basic educational level**

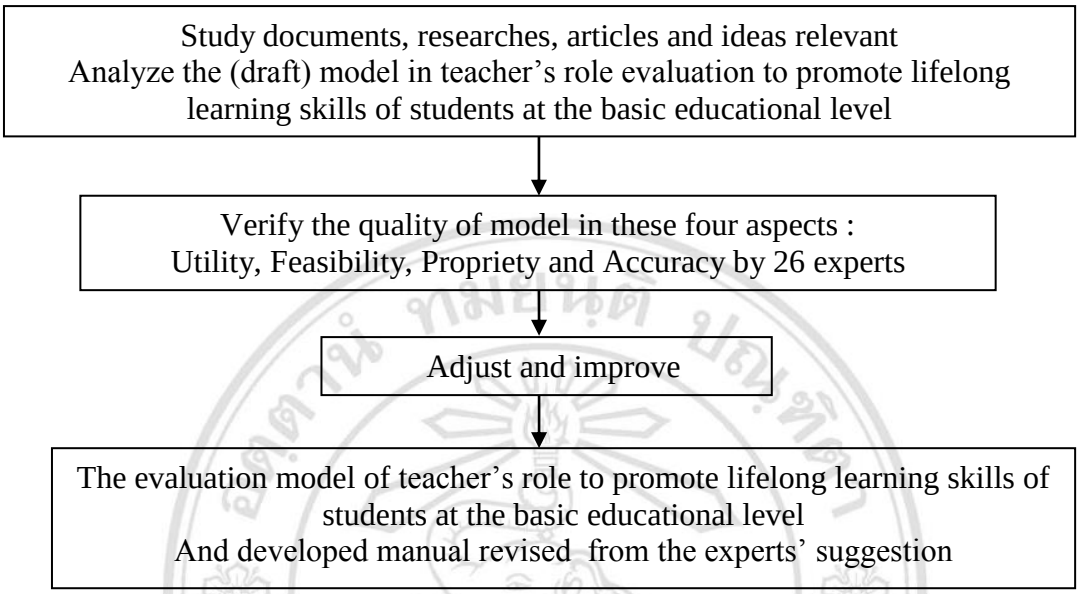


**Figure 3.3** Details of the second part of doing research, to develop The evaluation model regarding teacher's role to promote lifelong learning skills of students at the basic educational level

The development of evaluation model for teacher's roles to promote lifelong learning skills of students was considered to be as two main steps: developing the evaluation model and verifying the quality of the evaluation model by the experts. The details were as follows:



**Research Process**

**Step 1:** developing the evaluation model for teacher's roles to promote lifelong learning skills of students

1. As following to the first step, the researcher could have factors, indicators, proportion of an importance of factors and indicators for the teacher's roles to promote lifelong learning skills of students at the basic educational level. In this step, the researcher employed the result to be as an evaluated issue in a basic information in developing an evaluation model for the teacher's roles to promote lifelong learning skills of students at the basic educational level.

2. Study ideas, theories, documents and researches relevant to an evaluation model, then analyze the result of the study, and create the diagram showing the relationship of the way to develop an evaluation model (Figure 2.4 page 49)

3. After analyzing the (draft) evaluation model for the teacher's roles to promote lifelong learning skills, it found out the significant factors as follows:

1) The Purpose of Evaluation
2) Evaluating Issues
3) Evaluation Methods: assessor, evaluation process, instruments for evaluation, duration in evaluation and data collection
4) Criteria for Evaluation
5) Evaluation Report and Ways to Evaluation Application

3. Determine the details of the evaluation purposes in order that the teacher could have a feedback to improve self- development in promoting students in lifelong learning skills.

4. Determine the details of the evaluation purposes: factors, proportion of an importance of factors and indicators for the teacher's roles to promote lifelong learning skills of students at the basic educational level resulting from the first step result.

5. Determine the details of the evaluation: assessors, evaluation process, instruments for evaluation, duration in evaluation and data collection

6. Create a rubric to identify the difference of performance and behaviors for a teacher's role and lifelong learning skills of students. This was a way to measure the student'' scoring which applied from both the basic education standard and practices by Bureau of Academic Affairs and Educational Standards, Office of the Basic Education Commission of Thailand, Ministry of Education (2550) and specify the value as 4 ranking 1 2 3 4 (Appendix C page 260).

7. Create the criteria of the indicators' quality assessment for the teacher's roles to promote lifelong learning skills of students. The details of the rubrics would be applied from the capability assessment of the teacher's working by the teacher's development system of Bureau of Teacher Education Personnel Development, Ministry of Education (2005)

| Category | Excellent (4) /Completed | Good (3) / Completed | Fair(2) / Not Completed | Need improving (1) / Not Completed |
|---|---|---|---|---|
| **Comprehension** | Having most comprehension supports the performances effectively to be advisable to others | Having much comprehension to perform by oneself | Having little comprehension to perform by oneself | Having no comprehension to perform by oneself |
| **Practices** | Perform or regularly behave (about 81-100% of behavior can be seen) | Perform or frequently behave (about 61-80% of behavior can be seen) | Perform or sometimes behave (about 1-60% of behavior can be seen) | Never perform |
| **Characteristic** | Most | Much | Little | None |

8. Create the criteria of the indicators' quality assessment for lifelong learning skills of students. The details of the rubrics would be applied from the proceeding of the education standard to practices by Bureau of Academic Affairs and Educational Standard, Office of the National Education Commission (2007)

| Need improving (1) /Not Completed | Fair(2) /Not Completed | Good (3) /Completed | Excellent (4) /Completed |
|---|---|---|---|
| The number of students at/ or over level 3 are less than 50% | The number of students at over level 3 are between 50 -74% | The number of students at over level 3 are between 75 - 89 | The number of students at over level 3 are more 90% |

9. Create the criteria of the assessment applied from the proceeding of the education standard to practices by Bureau of Academic Affairs and Educational Standard, Office of the Basic Education Commission of Thailand, Ministry of Education (2007). The details were as follows:

| Scoring Rubrics | Level of Quality |
|---|---|
| Below 1.75 | **Not completed,** at **need improving** and extremely need development |
| 1.75 – 2.74 | **Not completed,** at fair level and need development |
| 2.75 – 3.49 | **Completed,** at **Good level** but enable to improve weaknesses without having an effect on teacher's roles to promote students' lifelong learning |
| 3.50 – 4.00 | **Completed,** at **Excellent level** with having an efficient effect on teacher's roles to promote students' lifelong learning |

10. Develop the program to assessment result through http://www.lllskill.com/assessment/index.php and also write the manual of using this program

11. Analyze the proceeding of the teacher's role development to promote lifelong learning skills of students referring to the policy of educational institutes and relevant documents.

12. Design website as an information resource centers in collecting data relating to a teachers' role to promote lifelong learning skills of students for other interested people to educate and use as the proceeding of self-development in learning management, assisting, supporting, inspiring and creating classroom environment, classroom management, following up and evaluation, teacher's characteristic and Lifelong Learning Skills. To search the information mentioned, the visitor could browse URL http://www.lllskill.com

13. Set out the handbook of evaluation form for teachers' roles to promote lifelong learning skills.



**Step 2 : Verifying the quality of the evaluation model for teacher's roles to promote lifelong learning skills of students**

1. Verify the quality of the evaluation model for teacher's roles to promote lifelong learning skills of students at the basic educational level in four aspects: Utility, Feasibility, Propriety and Accuracy by creating the fourth set of instrument (Appendix B page 250)

2. Verify the fourth set of instrument by 26 experts to consider the quality of the evaluation model for teacher's roles to promote lifelong learning skills of students.

**Samples**

In this study, the samples were 26 experts: 13 experts who specialized in measurement and educational evaluation, and 13 comprising school administrators, educational supervisors, teachers, and experts in computer. These experts has been qualified as a doctorial degree in education and have at least five year experience in being educational experts or having academic reports relating to evaluation model (the name list shown in Appendix A page 243)

**Research Instruments**

**1. Verifying the model quality**

The instruments for collecting the data was the fourth instrument: the survey to the expert in considering the evaluation model for teacher's roles to promote lifelong learning skills of students. (Appendix B page 250)

According to the process of verifying the survey of the experts' ideas in considering the model quality, the details were as follows: study documents and the researches relevant to creating the survey. Then, advise eight experts who are specialized in educational evaluation, Educational Research and Development. (See the expert name list in Appendix A page 242) They all have the doctorial degree in Educational Measurement and Evaluation and Educational Research and Development and have at least five year experience in being educational experts. They would verify construct validity in considering the assessment of research instrument regarding the survey in consideration of the evaluation model for the teacher's role to promote students' Lifelong Learning skills. The language would be revised at last.

After the expert's consideration, it can be found out that the index of agreement were between 0.75 -1.00. This indicates that every indicator have the agreement of factors defined. Also, the expert gave ten suggestions and recommendation to improve the language uses and recommended that three questions should be added. In the conclusion of the survey , the expert concluded that the roles of teacher to promote

students' Lifelong Learning skills at the basic educational level could be seen in four aspects: 5 items for utility, 6 for feasibility, 5 for propriety and 15 for accuracy.

**Data collection**

Asking for data collecting, the researcher sent a mail from Faculty of Education, Chiang Mai University to the sampling groups to ask for participation in doing the survey, put it in the envelop attached, and send back to the researcher to the address given.

**Data analysis**

The researcher verified four aspects of the data quality: Utility, Feasibility, Propriety and Accuracy by analyzing the means, standard deviation and content analysis.

**Criterion**

In verifying the evaluation model's quality of the teacher's role to promote lifelong learning skills of students, the mean with standard deviation was calculated in the analysis as follows:

| | | | |
|---|---|---|---|
| An average | 4.50-5.00 | indicates the model is qualified as | "Most" |
| An average | 3.50-4.49 | indicates the model is qualified as | "Very much" |
| An average | 2.50-3.49 | indicates the model is qualified as | "moderate" |
| An average | 1.50-2.49 | indicates the model is qualified as | "Little" |
| An average | 1.00-1.49 | indicates the model is qualified as | "Least" |

**Part 3 Testing and finding quality of evaluation model for teacher's roles to promote lifelong learning skills of students at the basic educational level**

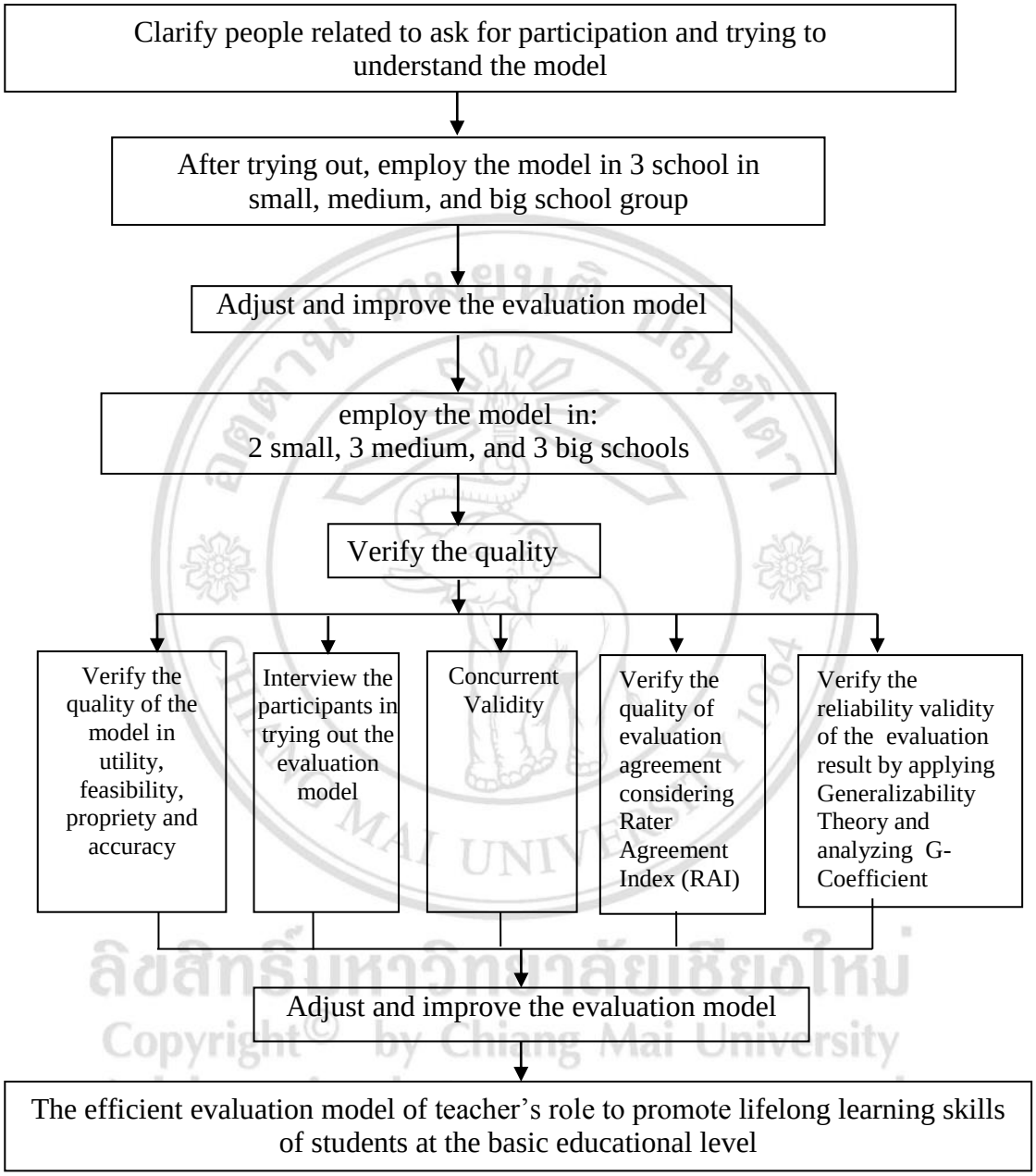




**Figure 3.4** Details of the third part of doing research, to try out and find quality of the evaluation model regarding teacher's role to promote lifelong learning skills of students at the basic educational level

Trying out to find the quality of the evaluation model would consider the expert's ideas relating to trying out the model in order to qualify the model in utility, feasibility, propriety and accuracy. To verify the agreement quality of evaluation result, the calculation of the Rater Agreement Index (RAI) was used. Moreover, Generalizability Theory was employed to verify the reliability validity of the valuation result by using the Generalizability Theory and analyzing the G-Coefficient. Besides, using Known groups method with Mann-Whitney U test was applied to analyze Concurrent Validity. In this step, 42 samples in a group of school administrators and teachers from 11 schools was tried out hopefully to the future generality. In this step, the researcher used the criteria in differing schools to three sizes: small, medium and big using the ideas of Walter Dick, Lou Carey, and James Carey (Gall, Meredith D., et al., 2007, 589-594) and followed Educational Research and Development : R&D.

**Research Methodology**

1. The researcher asked for the participation to schools in trying out the evaluation model by contacting to whom it may concerns.

2. The researcher clarified the process for participant group to understand in the same way and realize the advantages in doing research. Also, the details of trying out this evaluation model and the handbook of the evaluation model were explained for the participants. Then, the researchers had an appointment for interviewing after doing the trail to get a better expected result.

3. To apply the suggestions and improve the evaluation model during December 2014, participants tried out the evaluation model in three schools: one for each group: small, medium, and big. These schools were the first, fourth, and eighth (see figure 3.4)

4. After trying out the evaluation model, it was adjusted and employed in eight schools: two small schools, three medium schools, and three big schools. According to the school list in table 3.4, these were 2-3 , 5-7 and 9-11 respectively. To enable to improve the model, this process could be done during January – March 2015.

5. The researcher collected the data from the participants after employing the evaluation model by interviewing their ideas towards the evaluation model, problems, barriers and any suggestions after trying out the model.

**Sampling Group**

The sampling group participating in trying out the evaluation model was both small and big schools who give importance and are pleased to participating in trying out. These 11 schools consisted of 42 teachers and school administrators. The researcher considered the generality of the grade level, subjects, and kinds of schools: public, municipal and public schools (Table 3.4) ( See details of the school list in Appendix A page 245).

**Table 3.4 The names of school, sizes, numbers of participants using the model, subjects and grade level**

| School | School Size | Numbers of participants using the model | Subject | Grade in Trying out |
|---|---|---|---|---|
| 1. Wachirawit School (Chang Klan) | Small | 3 | Social Study, Religion and Culture | Grade 1-3 |
| 2. Chum Chon Ban Praw Noom | Small | 3 | Foreign Language | Grade 4-6 |
| 3. Banhean | Small | 3 | Career and Technology | Grade 1-3 |
| 4. Ban Na Wai | Medium | 3 | Thai Language | Grade 4-6 |
| 5. Chum Chon Ban Pa Phai | Medium | 3 | Thai Language | Grade 3 |
| 6. Ban Maepuka | Medium | 3 | Science | Grade 4-6 |
| 7. Ban Rin Luang | Medium | 9 | Arts, Foreign Language | Grade 1-6 |
| | | | Health and Physical Education | Grade 3 Grade 1-6 |
| 8. Bannongkrai | Big | 3 | Mathematics | Grade 4-5 |
| 9. Dara Academy | Big | 6 | Mathematics | Grade 4-5 |
| 10. The Prince Royal's College | Big | 3 | Mathematics | Grade 1 |
| 11. Municipality 2 (Maetam Daroon Wech) | Big | 3 | Health and Physical Education | Grade 3 |

**Research Instruments**

The fifth set of research instruments was the survey to ask the experimenters' ideas in aspects of using an evaluation model to of teachers' roles to promote lifelong learning skills of students at the basic educational level. (for more details, see Appendix B page 250)

The sixth set of research instruments was the surveys asking for the ideas in using an evaluation model. (for more details, see Appendix B page 255)

**Data Collection**

For data collection, the researcher sent a letter from Faculty of Education, Chiang Mai University to the sampling groups to ask for participation in interviewing and find the quality of an evaluation model to of teachers' roles to promote lifelong learning skills.

**Data Analysis**

1. The quality analysis of the model was calculated the means of descriptive statistics, standard deviation. In the survey to ask the participants who tried out the evaluation model, utility, feasibility, propriety and accuracy including content analysis from the interview were analyzed and interpreted.

**Criterion**

The criteria of can be interpreted as follows:

| | | |
|---|---|---|
| An average score | 4.50-5.00 | indicates the model is qualified as "Most" |
| An average score | 3.50-4.49 | indicates the model is qualified as "Very much" |
| An average score | 2.50-3.49 | indicates the model is qualified as "Moderate" |
| An average score | 1.50-2.49 | indicates the model is qualified as "Little" |
| An average score | 1.00-1.49 | indicates the model is qualified as "Least" |



2. The quality analysis of the evaluation model

2.1 Analyzing the quality of the Rater Agreement Index (RAI)

It was generated by Judith A. Burry-Stock et al. (1996). In a case of having many behavioral indicators, one of the appraisers with many assessors would be calculated in the following formula:

$$RAI = 1 - \frac{\sum_{k=1}^{K}\sum_{m=1}^{M}\left|R_{mk} - \bar{R}_k\right|}{K(M-1)(I-1)}$$

RAI means Fit index between assessor

$R_{mk}$ means Scores from assessor, m in behavior k (m = 1, 2, 3, …, K)

$\bar{R}_k$ means Average score of behavior k calculating from the following formula

$$\bar{R}_k = \frac{\sum_{m=1}^{M} R_{mk}}{M}$$

K means Numbers of behavioral indicators

M means Numbers of participants

I means Numbers of possible total scores (following torubrics)

The rubrics to consider the agreement of the evaluation model is: RAI ,which is almost 1, means relational model has a little agreement.

2.2 Analyzing the reliability validity of the evaluation model applying Generalizability Theory or G-Theory to analyze the value of G-Coefficient was statistical theory in analyzing the reliability validity or the validity of the instrument and the evaluation design to getting the reliable result. GENOVA (Crick; & Brennan, 1983) was applied in the format of (R : P) X I Design. When each teacher (P) was evaluated in every indicators in the evaluation (I), the groups of the different assessors (R) was calculated as the following formula:

$$\text{G-Coefficient} = \frac{\sigma_p^2}{\sigma_p^2 + \text{Error Variance}}$$

G-Coefficient means Generalizability Coefficient

$\sigma_p^2$ means Variance of universe

Error Variance means Variance of error scores

The rubrics of G - Coefficient can be stated that the validity value which is almost 1 shows the reliability validity at a high level while the validity value which is almost 0 shows the reliability validity at a low level.

2.3 Analyzing of Concurrent Validity was applying by Known groups method with the statistics of Mann-Whitney U test. The appraisers could be divided into two groups. First, the externalization group was the teachers who was awarded as one of 100,000 teachers, an excellent private school teacher. According to the rule of qualification, this consisted of five teachers who had or approximately had a qualification of the teachers who had the learning management to promote students' lifelong learning skills. Another teacher group was nine general teachers. The hypothesis were as follows:

Ho : The teachers in the first group has different scores of the teachers' role evaluation in promoting students' lifelong learning skills from the second group.

H1 : The teachers in the first group has not different scores of the teachers' role evaluation in promoting students' lifelong learning skills from the second group.