Chapter III

Research Methodology

This study is a research and development (R&D). The research methodology includes a quantitative, qualitative and action research methods. The research is divided into three phases which consists of:

Phase 1: It is a quantitative research which studies on what influencing causal factors contribute to the success in implementation of Schools of Quality for Secondary Schools. The discussion includes:

1. Population and sample group

2. Variables

3. Tools for data collection

4. Data collection

5. Data analysis

Phase 2: It is a qualitative research in order to construct a development model of Schools of Quality for Secondary Schools. The discussion includes:

1. The sample target group

2. Tools for data collection

3. Data analysis and creating a development model

Phase 3: Implementation and evaluation of the constructed development model of Schools of Quality for secondary schools. The discussion includes:

1. The implementing target group

2. Variables

3. Tools

4. Method

5. Implementing and evaluating the development model of Schools of Quality for secondary schools.

6. Research processes of development model of Schools of Quality for Secondary Schools.

Phase 1: It is a quantitative research which studies on what influencing causal factors contribute to the success in implementation of Schools of Quality for Secondary Schools. In this phase, the research focuses on studying factors influencing the success in implementation of Schools of Quality for secondary schools.

1. Population and Sample Group

1.1 Population: The unit of analysis for this research is a secondary school. As such, a population is a number of 163 secondary schools in the five UNICEF target provinces namely Phongsaly, Luangnamtha, Saravan, Sekong and Attapeu. (MOE, EMIS, 2010-2011)

Table 1: Numbers of Secondary Schools by Province

No.	Provinces	Numbers of secondary schools
1	Phongsaly	30
2	Luangnamtha	40
3	Saravan	45
4	Sekong	26
5	Attapeu	22
	Total	**163**

1.2 The sample group for this research was a number of secondary schools in the five UNICEF target provinces in Lao PDR. The designed research questionnaires were distributed to the sample group. The calculation of sample size for this is as follows:

1.2.1 In order to calculate the sample size, the Taro Yamane formula will be used for sampling. The Taro Yamane formula was as follows:

$$n = \frac{N}{1 + Ne^2}$$

n = sample size

N = numbers of population

e = error acceptable by defining at .05

Then put the figure in the formula:

$$n = \frac{163}{1 + 163(0.05)^2}$$

n = 115.80

By using Taro Yamane formula for calculating the sample size, the number of sample was about 115.80 schools. As a result, the two decimal digits value is greater than five, so they were rounded up for ease in use for calculation the sample size. Thus, the samples for this research were 116 secondary schools. To ensure that the data variation in all five provinces, the following formula was used to calculate the sample size for each province:

$$n_x = \frac{N_x \times 116}{163}$$

n_x = numbers of sample in province x

N_x = total numbers of schools in province x

1.2.2 Sampling method consisted of the following two steps:

Step 1: The researcher used a stratified random sampling technique by dividing members of population into subgroups before sampling. Then a simple random sampling technique was used to get a proportion sample in each district.

Step 2: The researcher enlisted names of sample representing each group then selected the sample by lucky drawing labeling or labeling technique.

Table 2 Numbers of Secondary Schools and Samples in Each Province

No.	Provinces	No. of secondary schools	No. of sample
1	Phongsaly	30	21
2	Luangnamtha	40	28
3	Saravan	45	32
4	Sekong	26	19
5	Attapeu	22	16
	Total	163	116

In each school, a total number of 4 persons representing directors, teachers, students, and community members were key informants providing information in respect to a given set of questionnaire. In order to calculate the total numbers of sample schools multiplied by four (116 x 4 = 464). Thus, the total numbers of informants were 464 persons.

2. Variables

The variables used in the research were exogenous variables, mediated endogenous variables and an endogenous variable.

2.1 The exogenous variables which were causal factors influencing a success in implementation Schools of Quality for Secondary Schools include:

2.1.1 Leadership factor

2.1.2 Teacher factor

2.1.3 Student factor

2.1.4 Participation of community factor

2.1.5 School environment and equipment factor

2.2 The mediated endogenous variables which were causal and effecting factors including:

2.2.1 Management and administration factor

2.2.2 Teaching and learning factor

2.3 The endogenous variable which is an end effect is the success in implementing of Schools of Quality for secondary schools in Lao PDR.

3. Research Instrument for Data Collection

3.1 The research instrument for data collection

The research instrument used in data collection in Phase 1 was a questionnaire that the researcher adapted and developed from questionnaires that other researchers used in their studies. Under a close supervisory support and consultation of the thesis advisors, the questionnaire was revised and modified to suit with the context of this study. The research instrument employed in this phase was divided into three sections:

Section 1: In this section, the questionnaire was designed to collect a general data of informants which includes name and location of school. It was an open-ended question.

Section 2: In this section, the questionnaire was designed to collect data on factors influencing a success in implementation of Schools of Quality for secondary schools in Laos. It was Likert typed rating scale questionnaire. It was divided into 5 scales as the following: most, more, moderate, less, and least. To ensure that the questionnaire was contextually applicable and covered all factors used in this study, it consisted of 80 items as shown in table 3 below:

Table 3 Numbers of Questions for Each Factor

No.	Factors	Numbers of questions
1	Leadership factor	10
2	Teacher factor	10
3	Student factor	10
4	Pedagogical advisor factor	10
5	Management and administration	10
6	Teaching and learning factor	10
7	Participation of community factor	10
8	School environment and equipment	10
	Total	80

Section 3: In this section, the questionnaire was designed to collect information on a successful implementation of Schools of Quality for secondary schools in Lao PDR. The questionnaire focused on the six dimensions of Schools of Quality approach: 1) inclusive of all children; 2) effective teaching and learning which is relevant to children's lives; 3) clean, healthy, safe and protective; 4) promotion of gender balance; 5) active encouragement of community members to participate in school development activities and teaching and learning; and 6) good management and administration.

3.2 Quality examination of research instrument

To ensure that the research instrument used in phase 1 had a reliable quality, the researcher employed the following procedures:

3.2.1 The research instrument was examined on content validity, meaning and language terms used, and contextual relevance to find the item objective congruence (IOC) and to ensure that all of the questions on five factors were correct and comprehensive in terms of theories and definition and had influence on the successful implementation of Schools of Quality for secondary schools by three relevant specialists. The three specialists

consisted of: 1) Mr. Ly Fong, General Director of Secondary of Education Ministry of Education and Sports - Master in Education Management, examined on the content and research language terms; 2) Mr. Khet Phanhuk, Deputy Director of Teacher Training Department of Ministry of Education and Sports - Master of Education, examined on the measurement and evaluation; and 3) Dr. Onkeo Nuanavong, Deputy Director of Research Institute of Education Sciences of Ministry of Education and Sports - Doctorate Degree in Education, examined on the research statistics.

      3.2.2 After having had been examined in both contextual and structural validity, the questionnaire had been tried out in 40 secondary schools that were not in the sample group of the research. (Rungson Singhalert, 2007 : 141)

      3.2.3 The data were then analyzed for an item discriminating power by using *Item – Total Correlation technique* to find a value of item correlation of total correlation score in each individual dimension. Any score that was higher than 0.26 was selected. (.05 r_{38} = .2573)

      3.2.4 The questions that met the criteria were then analyzed for a reliability of a whole set of questionnaire by finding Alpha Coefficient by using Cronbach's technique (Cronbach, Lee Joseph, 1970 : 161).

      3.2.5 The researcher met and discussed with the thesis advisor and the specialists on the edited and modified questionnaire for their comments and feedback. The questionnaire was then finalized based on the advisor and specialists' comments and advice. The complete set of questionnaire was then printed and administered to the actual sample group for collecting data.

4. Data Collection

The researcher carried out data collection with the following procedures:

      4.1 Deliver a request letter for collaboration to Provincial Education Service of Phongsaly, Luangnamtha, Saravan, Sekong and Attapeu to seek assistance in coordination with secondary school directors in collecting data with directors, teachers, students and student parents' association community members.

4.2 The researcher collects data.

4.3 The data collection method: School directors, teachers, students, and members of Parents' Association were invited to fill in the questionnaire in each school. The questionnaire was given to each informant to fill in. If there was any question regarding the questionnaire, there was an explanation for the informants for clarification.

5. Data Analysis

For data analysis in phase 1, the researcher grouped and recorded a score of each question by using a coding form. The data were then analyzed by a statistical package to test the temporary theoretical hypothesis research assumption.

5.1 Descriptive method: This used to describe about general information. The statistics used for analysis were mean, percentage, frequency, and standard deviation.

5.2 A statistical analysis to test the research hypothesis was a structural equation modeling (Path Analysis) using a statistical application LISREL (Joreskog & Sorbom. 1998 : 70) and Pearson Correlation to describe correlations of factors contributing to the successful implementing of Schools of Quality in secondary schools by defining a statistical significance at the level of .05.

Phase 2: It was a qualitative research in order to construct a development model for implementation of Schools of Quality in Secondary Schools. In this phase, the research was to construct a development model for implementation of Schools of Quality in secondary schools.

1. Target Group

The target group for phase 2 consisted of 20 professional specialists in educational, pedagogical and developmental fields. The target group was selected by the purposive sampling technique.

2. Instrument for Data Collection

2.1 Research Instrument

The research instrument used in Phase 2 was a research result from Phase 1 which was a guideline for implementation of Schools of Quality in secondary schools. The

researcher based on the result to construct a draft model for the selected specialists to criticize on it in a workshop.

2.2 Research Instrument for Data Collection

The research in phase 2 was to construct a development model for implementation of Schools of Quality in secondary schools by conducting a consultation workshop and inviting 20 specialists from relevant educational and developmental fields to review and feedback or provide recommendations on the draft model. The feedback and recommendations from the experts were recorded by taking note, sound recording and video recording, taking photos. Then, the researcher summarized the feedback and recommendations into a summary sheet. The experts' feedback and recommendation were synthesized and compared with the actual context in order to improve the model accordingly.

3. Data Analysis and Construction of the Development Model

For data analysis in Phase 2, the experts' comments and recommendation were analyzed by matching them with each variable (taken from phase 1) and grouping them. Then, the grouped comments and recommendation were synthesized in order to use an analyzed result for constructing a development model for implementation of Schools of Quality approach in secondary schools with the following procedures:

3.1 A result from data analysis in phase 1 was used to construct a draft development model for implementation of Schools of Quality approach in secondary schools. Then, the draft model was used for discussion.

3.1.1 Conducting a workshop to review and comment on the constructed draft model by 20 experts. The experts were seated in small groups to comment and discuss on the draft model for implementation of Schools of Quality in secondary schools. Then a representative from each group presented their group discussion result for brainstorming and plenary discussion. The researcher summarized all of the comments, feedback and recommendations and revised and finalized the development model for implementing of the model in phase 3.

Phase 3: The implementation and evaluation of the development model of Schools of Quality for secondary schools. In this phase, it was the implementing and evaluation of the development model for implementation of Schools of Quality in secondary schools. The processes were as the following:

1. Target group

The target group used for phase 3 consisted of 1) Hmong Chao in Phongsaly, 2) Boten in Luangnamtha, 3) Kokpoong Yai in Sekong 4) Nakoysao in Saravan and 5) Sethathirath in Attapeu. The researcher selected these schools as the target group because:

1.1 They were the secondary schools in the UNICEF target areas.

1.2 They were the schools that wanted to implement the development model of Schools of Quality for secondary schools.

1.3 They were the schools that had readiness in terms of human resource and serious attention to implement the development model for implementation of Schools of Quality for secondary schools.

1.4 They were the schools located not very far away. This was because the schools needed to be closely monitored on the implementation of the development model of Schools of Quality for secondary schools within ten months and to ensure that it was practical and applicable for the implementing schools.

2. Variables

2.1 An independent variable was the development model of Schools of Quality for secondary schools.

2.2 A dependent variable was the success in implementing Schools of Quality in secondary schools.

3. Research Instrument

3.1 The pre-test and post-test form.

3.2 The actual findings from the implementation of the development model of Schools of Quality for secondary schools.

4. Method

A Quasi Experimental Designed was used for this step. It was a one-group pre-test post-test design which had a research planning as follows:

$$O_1 \text{-------------------} X \text{-----------------} O_2$$

O_1 as a pre-test

X as an implementation

O_2 as a post-test

And it had the following procedures:

4.1 Selecting the experimental group for implementation of Schools of Quality Approach in secondary schools by using the purposive sampling technique. The experiment group included 1) Hmong Chao in Phongsaly, 2) Boten in Luangnamtha, 3) Kokpoong in Sekong 4) Nakoysao in Saravan and 5) Sethathirath in Attapeu.

4.2 Collecting data from the experimental group prior implementing as pretest.

4.3 Implementing a development model for implementation of Schools of Quality in secondary schools as treatment.

4.4 Collecting data from the experimental groups after implementing the development model as posttest.

4.5 Analyzing a result from the treatment and summarizing the result of implementation.

5. Evaluating the development model for implementation of Schools of Quality in secondary schools.

It was an evaluation of the implementation of the development model of Schools of Quality for secondary schools in phase 3. The model was revised and finalized, and implemented in 1) Hmong Chao in Phongsaly, 2) Boten in Luangnamtha, 3) Kokpoong in Sekong 4) Nakoysao in Saravan and 5) Sethathirath in Attapeu for one academic year. The result from the treatment was analyzed in order to respond to research objectives in phase 3 by using Wilcoxson Signed Rank test.

The research process for developing the model of Schools of Quality

Phase 1: The Research - studying causal factors contributing to the success

In phase 1, it wa a quantitative research to study on what causal factors contributing to the success of Schools of Quality in secondary schools.

The independent variables used consisted of 1) leadership 2) teachers 3) students 4) pedagogical advisors 5) management, 6) teaching and learning, 7) participation of community, & 8) school environment and equipment

The dependent variable was the success of Schools of Quality for secondary schools in Lao PDR.

The population and sample group were numbers of 116 secondary schools in the five UNICEF target provinces namely Phongsaly, Luangnamtha, Saravan, Sekong and Attapeu.

The research instrument used in data collection was a questionnaire.

Data analysis: A descriptive method was used to describe general information. The statistics used for analyzing were mean, percentage, frequency, and standard deviation. The statistical analysis to test the research hypothesis was a structural equation modeling (Path Analysis) by using a statistical application LISREL and Pearson Correlation to describe correlations of factors contributing to the successful of Schools of Quality in secondary schools by defining a statistical level of significance at .05

In this phase, the research was to construct a development model of Schools of Quality in secondary schools.

The target group for phase 2 consisted of 20 professional specialists in educational, pedagogical and developmental fields.

The target group was selected by the purposive sampling technique.

The research instrument used was the research findings from phase 1. The researcher based on that result to construct a draft model for the selected specialists to criticize on it.

Data collection was done by conducting a workshop by using focus group and brainstorming approaches.

The implementation: Implemented and evaluate the development model for implementation of schools of quality in secondary schools in the 5 implementing secondary schools in the five UNICEF target provinces namely 1) Hmong Chao in Phongsaly, 2) Nateoy in Luangnamtha, 3) Kokpoong in Sekong 4) Nakoysao in Saravan and 5) Sethathirath in Attapeu.

Data collection was done by using the development model created in Phase 2 and implemented in the 5 secondary schools for ten months. The data collection was done in three stages as follows: stage 1 was prior the implementation or pre-test, stage 2 was during the implementation and stage 3 was after the implementation or post-test. Then, the pre-test and post-test data was compared by using Wilcoxson Signed Rank Test.

Figure 11: The research process in all of the three phases