

CHAPTER 3

METHODOLOGY

In this study, Farmers' Participation in Sustainable Agricultural Development in the Highland Area of the Royal Project in Chiang Mai province the mixed methodology research

For the quantitative research and participatory action research, focused on the Farmers' participation in sustainable agricultural development in the Highland area of the Royal Project and the economical planting in the water and soil conservation in the Royal Project. I studied in the 7 Royal Project Development Center that they were different in native of farmer and an area of the study for qualitative research.

The research process of the study was followed:

1. Review the literature, development and other documents that relating this research and target area of the secondary data.
2. Make the session for telling about this project to administer and stakeholder of 7 Royal Project Developments Center.
3. Collect the quantitative data of the farmers' participation in the Highland area of the Royal Project and the economical planting in the water and soil conservation in the Royal Project via interviewing with each the farmer.
4. Collect the qualitative data of farmers' participation process in the Highland area of the Royal Project and the economical planting in the water and soil conservation in the Royal Project via the session and brainstorm farmers.
5. Collect the data then evaluate and write the report.

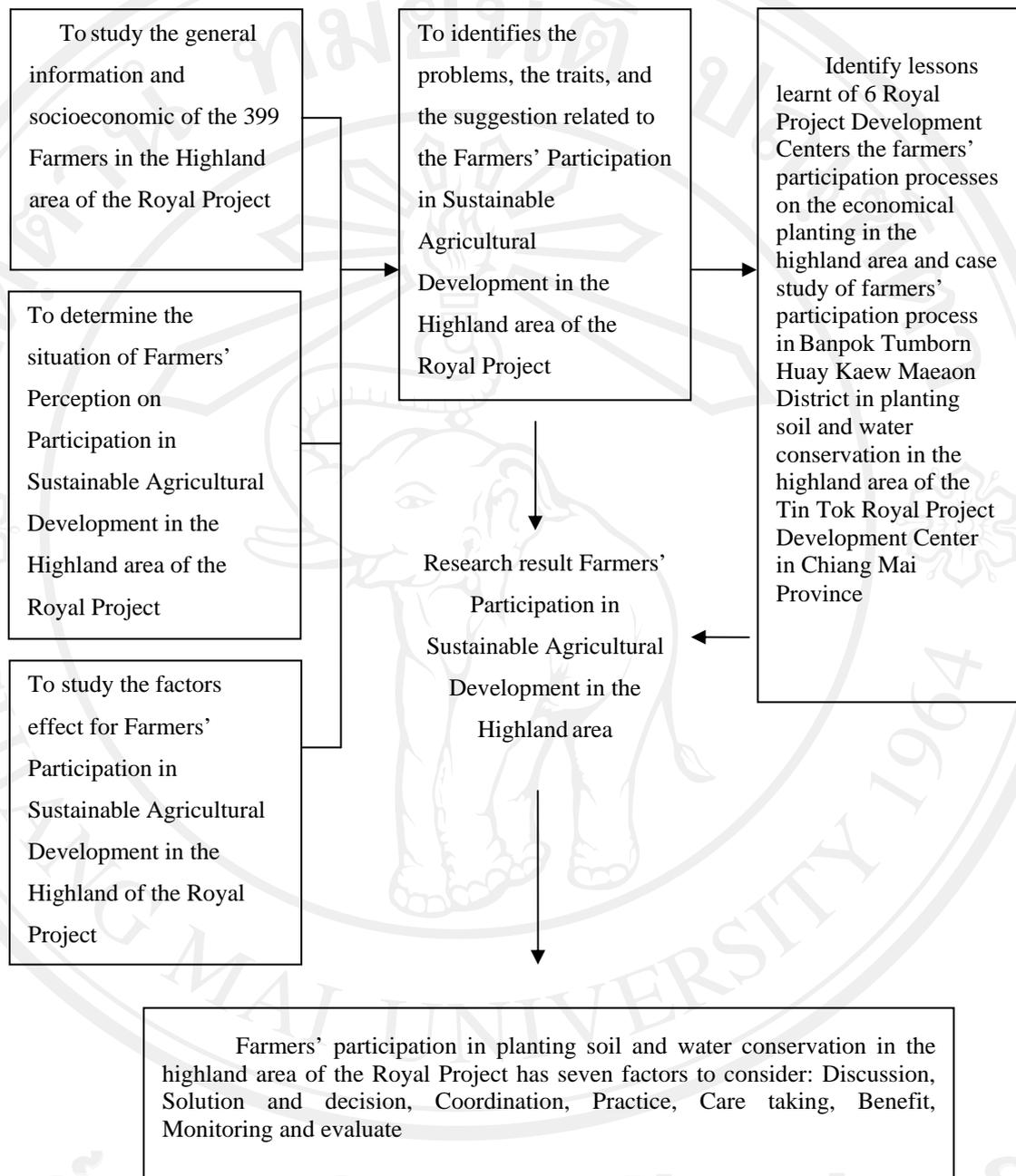


Figure 2 Research Conceptual Framework

Scope of investigation

1. Population

Research of population in amount studies farmers working under the system of the supportive Royal Project in the responsive area from several Royal Projects, including Huai Som Poi, Nong Hoi, Mok Cham, Tin Tok, Mae Poon Luang and Nong Khieo, along with Pa Miang Royal Project Development Center for 399 people those whose sampled from totally 20,234 people in Chiang Mai. The qualitatively sampling population includes peasant leader, officer head, researchers, research assistants and peasants of ; Huai Som Poi(Karen)18, Nong Hoi(Kmong)10, Mok Cham(Aka)17, Tin Tok(Local Lanna)15, Mae Poon Luang(Lesu)14 and Nong Khieo(Lahu)15 and Pa Miang(Local Lanna)19.

2. Sample

The sampling for population in this study, the researcher sampled with different procedures according to Multi-stage sampling and specific example sampling, which include several procedures as

Procedure 1 Selecting the desired location in the responsive area of Royal Project which is Royal Project Development Center in Chiang Mai.

Procedure 2 Sampling examples from Royal Project Development Center with 50% of total 28 Royal Project Development Center in Chiang Mai area which the outcome is 14 projects using a random principle of the north, south, east and west.

Procedure 3 Sampling examples from Royal Project Development Center with 50% of total 14 Royal Project Development Center in Chiang Mai area which the outcome is 7 projects using a random principle of specific by the center for the tribe of farmers.

Procedure 4 Sampling examples in each Royal Project Development Center by using ratio method.

Procedure 5 Interviewing the sampling people from needed amount.

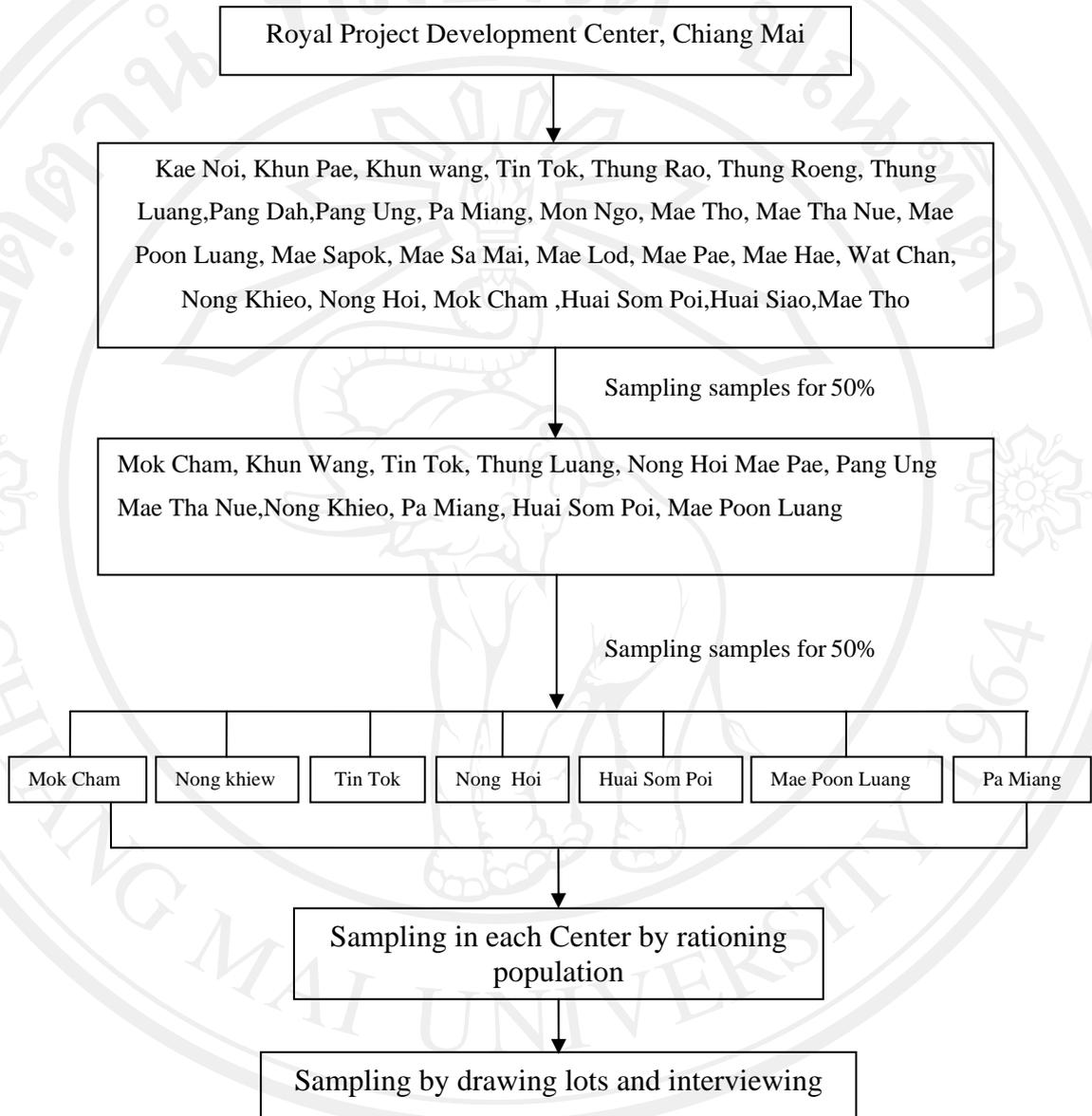


Figure 3 Sampling Method

Corresponding to the amount of population by using Yamane method

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

n = Sampling amount

N = Total population

e = Uncertainty (0.05)

$$\text{Population amount } n = \frac{20,234}{1 + 20,234 (.05)^2} = 399 \text{ Farmers}$$

Table 1 Population sampling

District	Total Population	Sampling Amount
Mok Cham	2,186	140
Nong khieo	820	53
Tin Tok	383	25
Nong Hoi	448	30
Huai Som Poi	535	35
Mae Poon Luang	930	60
Pa Miang	873	56
Total	6,175	399

3. Research Instrumentation

3.1 Quantitative Instrumentation gathers data to meet objectives 1, 2, 3 and 4

The methods exploited for quantitative research used inquiries letting farmers and specific correspondents answered questions and collecting information in 4 steps

Step 1 The questionnaire about personality economics and farmer society

Step 2 The questionnaire about educational comprehension of the development of farmer in the highland plain.

Step 3 The questionnaire about the participation among farmer in the area of agricultural development in the highland plain, which includes the multiple four choices comprising collective activities as

1. Participation in discussion for conservative planting in the highland plain of the Royal Project area.
2. Participation in sharing ways and decisions to do agricultural activities in the projects of economically conservative-soil and water systems in the highland plain.
3. Participation in coordination about agricultural development in the projects of economically conservative-soil and water systems in the highland plain.
4. Participation in care taking natural resources and basic elements of agriculture in the projects of economically conservative-soil and water systems in the highland plain.
5. Participation in doing or practice agricultural activities in the projects of economically conservative-soil and water systems in the highland plain.
6. Participation in getting benefits of unlimited agriculture in the projects of economically conservative-soil and water systems in the highland plain.
7. Participation in monitoring and evaluating the outcomes from agriculture in the projects of economically conservative-soil and water systems in the highland plain.

By exploiting the standard scale which includes scaling levels as

Levels of Participation	Scores	Average Points
Mostly	3	2.26-3.00
Moderately	2	1.51-2.25
Less	1	0.76-1.50
None	0	0.00-0.75

Calculating the score levels from 399 farmers in total in each topic and then averaging to adapt as the scores of Participation levels

$$\text{Formula} = \frac{\text{Highest Scores} - \text{Lowest Scores}}{\text{Levels}}$$

$$= \frac{3 - 0}{4} = 0.75$$

Step 4 The questionnaire about encountering problems and obstacles and general advice for the cooperation among farmers in the projects of economically conservative-soil and water systems in the highland plain.

The questionnaire was used to find the answers as followed the 1st, 2nd, 3rd, and 4th purpose.

Questionnaire testing

The researcher answered the inquiries as

Having validity of the inquiries is to follow committee for checking the correction, content validity and then rectifying until it is sufficient to be tested.

Collecting Data

Step 1 Collecting the information about a number of farmer, fundamental data of Royal Projects

Step 2 Collecting the primary data by inquiring farmers according to their objectives by interviewing individual, group discussion and providing a private stage

Step 3 The current research is the qualitative exploration with participatory among farmers, researchers, academic scholars, village leaders and several officers from agricultural branches. The receivable information is from recording every steps of exploration, interviewing and participial observation. For the researchers, they allocate responsive works and evaluating the target behaviors’.

To identify a participatory process of farmers in sustainable agricultural development project in the highland area in plant cultivation project in soil and water conservation in the facilitation of 6 Royal Project Development centers

From the operation of production support of the Royal Project, it mainly focuses on defining the project plan by the Royal Project Development Center

according to production plans of each department which meets market needs. Some farmers did not received the production plan, as well as lacked of understanding of the plan making in each season as well as operational plans in each step clearly. Moreover, the officials of the Royal Project Development Center together with the director of the center play significant role in agricultural production. Therefore, to enhance operational productivity of crops in the highland area of the Royal Project, farmer satisfaction and participation in planning and activity creation in every step is the most important part to build a suitable model for using in promotional activities and development in other agricultural areas. The identify of the participation process of farmers in sustainable agricultural development in the highland area of the Royal Project aims to study a participatory process of farmers in sustainable agricultural development in the highland area in the Royal Project with participation operation research. The sample groups of the study were leading farmers; head of the Royal Project Development Center, extension staff, researchers, assistant researchers, and farmers who conducted the farming systems of the Royal Project Development Center in Chiang Mai province. For example, 19 people of Pa Miang Royal Project Development Center, 10 people of Nong Hoi, 17 people of Mok Cham, 15 people of Nong Keaw, 18 people of Huay Som Poi, 14 people of Mae Poon Luang and 15 peoples of Tin Tok Royal Project Development Center.

3.2 The Procedure and tools for qualitative research to meet objective 5

The procedures and tools to study the collective research comprised for finding the answer as followed the 5th purpose that to identify lessons learnt of 6 Royal Project Development Centers the farmers' participation processes on the economical planting in the highland area and case study of farmers' participation process in Banpok Tumborn Huay Kaew Maeaon District in planting soil and water conservation in the highland area of the Tin Tok Royal Project Development Center in Chiang Mai Province as followed:

1. Constructing the relationship as partnership
 - Researcher and their assistants
 - Institute leader and officers
 - Agriculture leader and peasants

Activity

- Researchers inform their research objectives
- Analyzing the encountered problems to be understandable and allocating the people involved in the projects

Procedure

- Repeating ideas and studying the collective and local information
- Meeting with the people who involved for the project informally

Expected Results

- Understanding the context of problems in the local area
- Researchers, officers, leaders and peasants understand their roles or research

2. Participatory Rural Appraisal

- Informal meeting
- Problem analysis and the problematic roots
- Finding and analyzing the ways to solve problems

Procedures

- Meeting as a group and providing a public stage for villagers
- Analyzing the problematic roots
- Collecting the related information and how to exploit

Results

- understanding the problems to solve and visualize
- understanding the problem structures and how to solve them

3. Participatory Planning

- Uniting people informally
- Analyzing problems concretely
- Translating and addressing the problems

Procedures

- Meeting as a group
- Analyzing the potential and restriction of the community
- Action planning techniques

Results

- Understanding agricultural plan of the community

- Understanding the cooperative plan from outside
- Developing intimate relationship

Activity

- Developing and following agricultural and collective plans
- Managing obstacles and conflicts
- Sharing working experiences

Procedure

- Managing plans
- Sharing experiences of success and the conditions leading to the success and failure

Results

- Lessons learned from success or failure in solving problems
 - Gain knowledge of how to analyzing and solving problems
 - Gain ability of participatory solving problems
4. Meeting and dialogue
 5. Recording activities
 6. Taping recording
 7. Observing the development of the plan
 8. Evaluate the effort of the participant

4. Data Analysis

Quantitative analysis

The data from collated from the interviews was then calculated by the Statistical Package for Social Science (SPSS). The statistics include:

1. Socio-economic data was collated by Percentage, Mean and Standard Deviation.
2. The above data was used about understanding and participation.
3. Multiple Regression Analysis : Stepwise, were used to test the hypothesis to test the correlation between the independent variable(age; gender; education; total of household members; household members of school age; household members of working age; total household income; household land areas; The reception of

agricultural news from Media sources; Communication between Farmers, Royal Project officers and Government officers; Participation of Farmers in activities and customs of villages; Participation of Farmers in agricultural activities; Participation of Farmers in agricultural seminars and observations; Length of time that each Farmer stays in the area) and dependent variables (farmer's participation in sustainable agricultural development). The formula is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + b_{15}X_{15}$$

When Y = Farmer's participation in sustainable agricultural development.

a = mean

$b_1 \dots_{15}$ = alpha of the correlation between each dependent and independent variables.

X_1 = age of farmers.

X_2 = educational level of farmers.

X_3 = number of household members.

X_4 = number of household members age child.

X_5 = number of working age members.

X_6 = total household income.

X_7 = area holdings in household

X_8 = channel of agricultural development information receiving.

X_9 = contact to support staff and officers and government officers.

X_{10} = participation in activities of the village or community.

X_{11} = participation on agricultural development.

X_{12} = participation on agricultural training and workshop.

X_{13} = duration of settlement in the area.

X_{14} = benefits to the Farmers of sustainable agricultural development in the highland area.

X_{15} = Knowledge of farmers about sustainable agricultural development in the highland area.

Criteria for the level of correlation Bupha (page: 148) levels of relationships as follows:

R_{xy}	Mean
0.70 >	Relationship in positive and higher ways
0.5-0.69	Relationship in positive and high ways
0.30-0.49	Relationship in positive and moderate ways
0.10-0.29	Relationship in positive and low ways
0.01-0.09	Relationship in positive and rare occurrences
0.0	No relationship
-0.01-0.09	No Relationship in negative
-0.10-0.29	Relationships in negative and low ways
-0.30-0.49	Relationships in negative and moderate ways
-0.50-0.69	Relationships in negative and high ways
-0.70 or more	Relationships in negative and higher ways

the relationship in a negative (-) indicates a relationship in the opposite direction.

Qualitative data analysis

In this research, the researcher analyzed the qualitative data and characterized the data according to the scope of research and check the data frequently until that could be used for describe as the followed of theory of Chai (2004). Chai stated that the data analyzing in qualitative research was the data management for increasing the meaning of those data to interpret and describe in term of theory. For this research, the researchers selected the analysis methods as followed:

1. Data management. Data management was the rearrange the data that ready to use those researchers divided the data by focusing the scope of the investigation that could be rearrange the data into groups, ex. the data of the Tin Tok Royal Project Development Center the data of cooperation of building participation, the data of participation process in each step, the data of behavior changing of farmer who join this project. So, the all of data managements were very important that the

researchers needed to present for understanding the detail of the rearrangement of the data as followed:

1.1. Note the data. In this research of the areas, wrote down the data in term of the main idea from the observation of the session and brainstorm. Then, more collected the data and other information in the participation process again for descriptive report included the opinion of the researcher after collected the data.

1.2 Data conclusion. Mind mapping was use as the tool for conclude the data. For the session and brainstorm to find the problem and plan in each plant production, the data from the research were the short conclusion. After the researcher categorized the main data, the subheading was showed by descriptive report and concluded in the table.

1.3 Showing the raw data. The researchers took the main and subheading data, relating with the participation process, that were more complete data than the initial step for checking the data. Then, divided the data into the clearly groups and categorized for understanding the relationship of the steps in the building process.

For the conclusion of each process, the researcher set the rule by taking the sub conclusion of the data to categories, and then took the each of the conclusion and plant groups to conclude. The researcher took the technique of Supang (1999) of 8 techniques, e.g. counting, pattern, group information, resemblance, detail, evaluation, integration and interrelation

So, the researcher selected the method that appropriated the data. Then, rearranged the data for relationship and prepared the data for conclusion.

1.4 Conclusion and interpretation. After gathering the data, the researcher had to categorize, conclude, and interpret the data that could be showed the meaning. The conclusion could be answered the questions and purposes of this research. The conclusions were not only the important step but they also showed the quality and useful of data. In this stage, Karnjana (2003) stated that the qualitative data analysis consisted of interpretation, category, and relationship of the data via theory.

Data analysis of qualitative research. After the researcher collected data about the participation of farmers in growing crops, soil and water conservation in the

Highlands area of the Royal Project Foundation is a target 6 area. The information consists of;

1. State of the participation of farmers in cropping systems in support of the Royal Project Development Center
2. Problems and Suggestions of farmers' participation in cropping systems in support of the Royal Project Development Center
3. Participation of farmers in different crops and the Royal Project Development Center
4. Factors of success and the reasons of farmer participated in the crop with the Royal Project Development Center

Acquisitions of data were gathered by asking farmers and officials promoted as head of Center for Individual. And a group meeting and an informal focus group discussion of six centers in the area, the data acquired by the Group Priority Order and writing research reports in accordance with the objectives and scope of the research provided. And analyze and synthesize information was based on the similarities and differences of the data. From each area after all the information to write a descriptive summary of any other clearly

In the detailed information about the creation and development of farmer participation in Case study Tin Tok Royal Project Development Center in the fall. The data were collected with the help researchers. Staff and farmers by the activities involved with the process centers and farmers in the area. Throughout the lifecycle of the research project the audio tape recorder was used. Based upon information already in place. Then, researchers used data taken with the process of grouping like data and corresponding in the same group. Then the descriptive writing, descriptive study and summary of research was done to obtain the objectives set forth in the preliminary

Conclusion

In this study, I use mixed methodology research namely (1) quantitative research and (2) participatory action research, which focused on the farmers' participation in sustainable agricultural development in the highland area of the Royal Project. I studied in the 7 Royal Project Development Centers in Chiang Mai Province which each site and the natives of the farmers are different. Numbers of 399 samples

were drawn from 20,234 populations by using Yamane's formula and a multi-stage sampling method. Statistical techniques used were percentage, arithmetic mean and standard deviation. The stepwise multiple regressions were also employed to test the hypothesis. Research instrument for quantitative research by questionnaires and qualitative research by constructing the relationship as partnership, participatory rural appraisal, participatory planning, meeting and dialogue, recording activities, tape recording, observing the development of the plan and evaluating the effort of the participants. Data analysis of qualitative research by taking note of the data, data conclusion by mind mapping, showing the raw data and conclusion and interpretation.