

CHAPTER III

METHODOLOGY



Study design

Descriptive study with Qualitative Research approach

Setting

Bhumibol Adulyadej Hospital, directorate of Medical Service, the Royal Thai Air Forces (MSRTAF)

Target population and population sampled

The key-informants were selected from three groups

A. Medical Students : First batch of CTPB medical students who were the 5th year medical students. They were studying in clinical phase at Bhumipol Adulyadej Hospital and had already passed 12 weeks of clinical clerkship in surgery. All of 19 students were enrolled in the study.

B. Faculty staffs : staffs in Surgical Department of Bhumipol Adulyadej Hospital were selected to be the key informant for this study.

C. Administrators or policy makers : Those who were the administrators or policy makers of the CTPB programme in the Directorate of Medical Service, the Royal Thai Air Forces (MSRTAF).

Method of the study

There were 7 steps in method of the study :

1. Test construction
 - a) Table of specification setting
 - b) Content validity assessment
 - c) Calculation of difficulty factor (DF)
 - d) Calculation of minimum passing level (MPL)
2. Test implementation
3. Quantitative data analysis
 - a) Calculation of test reliability
 - b) Calculation of student score
 - c) Calculation of difficulty index (DI)
 - d) Calculation of discrimination index (DIS)
4. Diagnostic report preparing
5. Feedback to students, staffs and administrators
6. Qualitative data collection
7. Data analysis

1. Test construction

a) Table of specification was developed by experts' opinion on content area in surgery (based on Thai medical council criteria) and the taxonomy of educational objectives : recall, interpretation or problem solving (see appendix A for definition and example of test for recall, interpretation and problem solving)

Content areas	Educational objectives		
	Recall	Interpre- tation	Problem solving
1. Bleeding	#1	#2	#3
2. Acute abdomen	#4	#5	#6
3. Shock	#7	#8	#9
.....
20. Pancreatitis	#58	#59	#60

From the table, #n represent the number of item that corresponds to table of specification. For example, #1 is the item of test that have content validity in area of "Bleeding" and the level of educational objectives for this item is "Recall".

b) Content validity assessment : A group of expert panel was set to judge for content validity of MCQ (one best and MTF) items according to the table of specification. Clarity of the items was also considered in this step.

c) Calculation of difficulty factor (DF) : Another group of experts was asked to examine DF for each items by using Nedelsky method.

d) Calculation of minimum passing level (MPL) by using Nedelsky method, average of DF for all items in each objective was calculated to be the minimum passing level (MPL).

2. Implementation of the test

The students were not be informed before the test date so that they were tested for their actual performances without preparation. However, they were told that this test was for diagnosis of their performances, no effect on their permanent score record but they would gain some benefits from feedback information.

3. Quantitative data analysis

a) Calculation of test reliability (internal consistency) was calculated by KR 21 formula. (appendix B)

b) Calculation of student score: Students individual score were calculated and compared with MPL to see the gap between MPL and score for each objectives (GAP). These gap represented the discrepancy of each students.

c) Calculation of difficulty index (DI) : The difficulty of a test item is indicated by the percentage of students who get the item right.

$$\text{Difficulty index} = \frac{R}{T} \times 100$$

when R = number of the students that got the items right

T = the total number of students

d) Calculation of discrimination index (DIS)

DIS is the degree to which it discriminates between students with high and low achievement.

$$\text{Discrimination index} = \frac{R_u - R_l}{1/2 T}$$

R_u = number of students in upper group who got the item right

R_l = number of students in lower group who got the item right

$1/2 T$ = half of the total number of the students

4. Diagnostic report preparing

The score feedback report for each students indicated the area of weakness in each students.

Content areas	Educational objectives		
	Recall	Interpre- tation	Problem solving
1. Bleeding	#1 X	#2 X	#3
2. Acute abdomen	#4	#5	#6 X
3. Shock	#7 X	#8 X	#9 X
.....
20. Pancreatitis	#58 X	#59	#60 X

The sign "X" means that the students answer the question in that area incorrectly.

5. Feedback to students, staffs and administrators

Each student was received their own score and diagnostic reports. Each item was discussed on its clarity and difficulty. At this stage, the source of discrepancy and weakness of the students were discussed.

The teachers and the administrators were also received feedback report about student discrepancy in the whole group.

6. Qualitative data collection

Participant observation and in-depth interview were conducted with the subjects from three group :

- a) Medical students
- b) Faculty staffs
- c) Administrators or policy makers

The opinion of the students for self-improvement and the opinion from faculty staffs and administrators for educational improvement were discussed.

The researcher used the construction of interview guidelines containing open-ended questions. These were designed to direct the conversation between the researcher and subject, but not dictate the subject's response. This technique allows the researcher to obtain deeper and more detailed information on a specific problem than do observational or quantitative studies. Since the interview context was a free-flowing discussion, the subject could talk on many potentially relevant topics which the researcher might not have considered. Likewise, the researcher could ask more in-depth questions as new

information was given. The researcher would be able to control the directions and relevancy of the topics discussed to a large extent. (Wathinee Boonchalaksi, 1989)

The average time used for each interviewee was about a half or one hour. The purpose and objectives of the study were carefully explained. The diagnostic reports of students' performance was shown to each subjects before discussion. The confidential nature of the interview was emphasized. If permitted by the interviewees, the discussions were taped for clarification of important points. A summary of each interview was sent to the interviewer for confirmation of its accuracy.

The content of the interview included :

1. Do they think that this kind of examination can help diagnose the discrepancy of students' knowledge? And why?
2. From their own point of view , what are the sources of weakness for the students' knowledge?
3. What are their plans for students' self-improvement?
4. What should be done to improve the students' knowledge?
5. Other suggestion for curriculum improvement.

7. Data summery and analysis

a) Quantitative data

Data	Data Summary	Test of difference between groups
Test score and MPL	mean, SD	paired t-test
Difficulty factor(DF)	mean, SD	unpaired t-test
Difficulty index (DI)	mean, SD	unpaired T-test
Discrimination index(DIS)	mean, SD	unpaired T-test

b) Qualitative data

All the data from the indepth-interview were collected, sorted, analysed and linked in order to form the concepts of perspective from each group of subjects. Strategies for educational improvement were be searched from all of the information and recommendation for diagnostic examination and educational improvement were developed.

Rationale for using Qualitative Research Methods

Over the past few decades, a noticeable increase has occurred in the utilization of research and analysis as inputs to the policy formulation and decision making in education. (Sippanondha Ketudat, 1981) It is commonly agreed that qualitative research methodology definitely have much to contribute to education policy formulation. (Suntaree Komin, 1981) The important facets of qualitative methodologies that contribute towards policy formulation in education can be summarized as follows:

1. It is holistic and multidimensional . An anthropological method aims to grasp and portray socio-cultural conditions and envisage problems or objectives holistically. Hence, this approach can lead administrator to a better understanding of reality and thus contribute to realistic problem solving.

2. It is in-depth and longitudinal. It provides detailed information and frequently display sequential and causal relations of attributes. It, thus, gives an insight to administrators and policy makers in understanding relations among various social variables.

3. It is naturalistic. It provides observation under natural settings, natural behavior and natural treatment. Qualitative research findings are relevant to the "real world"

4. It is humanistic. The methodology allows the researcher to obtain first hand knowledge about the world. He gets close to the data, these by, develops analytical, conceptual and a humanist touch of the situation.

5. It is descriptive. By the narration of the field note, a reader feels he is in the field. The report, thus, gives an inner understanding of human behavior which enables administrators and policy makers to comprehend social relations in greater depth.

In brief, the five facets of qualitative methodologies allow the researcher to be close to the issue and to integrate themselves with the problem. They permit researchers to hypothesize as many variables as needed, to collect data as scrutinized as possible (with the help of

various techniques) and, to interpret information as comprehensive as credible. In doing so, administrators and policy makers are provided with well-rounded data of social problems and deep understandings of their context. Certainly, they can have better alternatives for their decision makings.

Summary

In this chapter, and overview of the research methodology as well as the reason for using qualitative research method has been provided. Also, the plan for data analysis has been described.



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