

## CHAPTER III

### METHODOLOGY

#### **3.1 Research Method**

The research is carried out by using descriptive method. That is a method of research that involves **collecting** data in order to test hypothesis or to answer questions concerning the current status of the subject of study (Gay, 1987:189). In addition, he states that descriptive method can provide valuable data. It represents considerably more than asking questions and reporting answer. It involves careful design and execution of the component of the research process, including the information of hypothesis and may describe variable and relationship between variables. Thus, this method is conducted through several steps, such as identify appropriate sample, select or develop a valid data collection, and select appropriate data analysis procedure.

#### **3.2 Subject of the Research**

The population of research is the Mechanical Engineering Department Students, and the sample is the first semester students of Mechanical Engineering Department in the Faculty of Technology and Vocational Education. The writer chooses the Departments of Mechanical Engineering as a sample, believing they are adequate representatives of the whole population of students.

### 3.3 Data Collection

To improve the trustworthiness of the research result, Duffy (1987:1), suggest improving the strategies of triangulation data. It means that the data are collected through multiple sources, includes interview, observation and document analysis process. It is a way of crosschecking the result by targeting the same point by means of two or more techniques. For example, seeking info of classroom methodology by means of observation, questionnaire and interview. The combination of those techniques and a consistent pattern of result from each phase of the study will suggest that the conclusions are reliable and valid. It is in line with Furlong and Lovelace (2000) who state research validity can be increased by using variety of methods that used in conjunction with each other in a single qualitative study.

Moreover, Duffy (1987:1) cites nine benefits associated with triangulation:

- a. The conceptual framework, which provides the theoretical base of the study, can be developed in whole or in part from qualitative methods.
- b. In areas where methods produce overlap information, certain quantitative results can be verified by the results obtained through qualitative methods.
- c. Qualitative data gained from interviews and/or observations can be used as the basis for selecting survey items used in instrument construction.
- d. External validation of empirically generated constructs can be obtained by comparison with interview and/or observation data: where discrepancies exist, additional probing can be done to determine whether the mismatch

was because of a weakness in the instrument or to misinterpretation by the individuals taking the test.

- e. Case studies can be used to illustrate statistically derived models.
- f. Clarification of ambiguous and provocative replies to individual questionnaires can be observed by reexamining field notes.
- g. Quantitative data can provide information about program stakeholders who were overlooked initially.
- h. Using quantitative assessment can correct for the "holistic fallacy"; (the perception by the researcher that all aspects of a given situation are congruent, when in fact only those persons interviewed by the researcher may have held that particular view). Also the use of quantitative instruments can verify observations collected during informal field observations.

Therefore, in considering the benefits of triangulation above, the data were collected through library research, questionnaire, interview and observation.

### **3.2.1 Library Research**

It is done in order to get the theoretical background, which can support the research. It is collected through reading text book, journal and articles which mostly found in the internet.

### **3.3.2 Questionnaire**

According to Duffy (1987:2), some of the advantages of questionnaires are:

- a. Questionnaires are especially useful when the respondents must remain anonymous. They can be distributed and returned in ways that respondents can feel confident that their identities are secure.
- b. Questionnaires can be an efficient tool of collecting information from respondents' point of view. Questionnaires should be brief so that respondents spend no more than ten to fifteen minutes completing them.
- c. Different forms of questionnaires can be distributed to different audiences.

In this research, the questionnaire is used to collect data by distributing a set of written questions to the Mechanical Engineering Department' students. The questionnaire consists of open and closed questions. It is derived from several need analysis which have been published, here the writer try to collaborated Hutchinson and Waters Need Analysis Models and Alex Case Need Analysis Model. The questionnaire framework covers the area below:

- a. Students' background knowledge
- b. Students' opinion toward English
- c. Students' opinion toward the exiting material
- d. Students' necessities, lacks and wants
- e. Setting on where and when English will be used
- f. Interaction which students will use the language with

The questionnaire was tried out to 30 sample students before being given to the sample of research, in order to ascertain whether or not it is relevant and appropriate to the research. The tryout was carried out to 30 students of second grade year. Then some revisions are made. After being revised, questionnaire was multiplied and spread to the actual sample.

### **3.3.3 Interview**

Interview is the process of obtaining data by direct communication. It is a form of self report data gathering, used in qualitative research to collect answer to specific question from small sample of individuals. Qualitative interview typically center on open ended questions in which the responses are not necessarily predictable and may suggest new lines of inquiry for the researcher interested in exploring the topic in depth. The interview is held with Mechanical Engineering Department's Students, the lecturer, and the employees.

Here, the interview is conducted with students, English lecturer, the head of Mechanical Engineering Department, and employees (Mechanical engineer, and teacher of mechanical engineer, the fourth grade students of Mechanical Engineering Department). The item and organization of interview held derived from Hutchinson and Waters Needs analysis models.

The interview held to the students is concerned with following questions:

- a. Students' opinion about the necessity of knowing English in their field
- b. Students' motivation of taking English class
- c. The English function mostly required by students
- d. The weaknesses of the existing material
- e. Students' suggestion for English material

The interview held to the English lecturer is concerned with following topic:

- a. the language function that necessary for the students related to their particular disciplines
- b. The appropriate materials for the students related to their particular disciplines
- c. The reason for choosing the existing material students' weaknesses, necessities, lack and wants
- d. the opinion of ESP material
- e. Students attitude toward English class
- f. Students weaknesses in classroom situation
- g. Students performance in classroom situation
- h. the problem facing in classroom situation

The interview held to the head of Mechanical Engineering Department at Faculty of Technology and Vocational Education is concerned with following topic:

- a. The goal of English course at Mechanical Engineering Department
- b. The role and function of English
- c. The English function mostly required by Mechanical Engineering Department' Students
- d. The appropriate material for Mechanical Engineering Department' Students

The interview held to the Mechanical engineer's teacher, last grade students of Mechanical Engineering Department, and mechanical engineer is concerned with following topic:

- a. The opinion of English
- b. The relevance of English in their particular discipline
- c. The English language function mostly required

### **3.3.4 Observation**

It is used to identify the real situation of classroom interaction including the activities and method used in the process of learning. Moreover the class observation is conducted as an effort of the external validity of the research. As stated by Duffy (1987:2):

External validation of empirically generated constructs can be obtained by comparison with interview and/or observation data: where discrepancies exist, additional probing can be done to determine whether the mismatch was because of a weakness in the instrument or to misinterpretation by the individuals taking the test.

### **3.4 Data Analysis**

Since, the kind of data is qualitative and quantitative, so the organization and analysis of the data are divided into two ways.

#### **3.4.1 Quantitative data**

The use of quantitative data is to find out respondents' perception, opinion and judgment. It is used to analyze English needs of students. It is assumed that the suitable method to gain quantitative data is by distributing questionnaire. The data are analyzed by using the most basis descriptive statistic (frequency) which refers to how often something occurs.

The following steps are:

- a. Scoring students' response on closed questionnaire
- b. Using SPSS (Statistical Package for Social Science) in all calculation of closed questionnaire. All the calculation dealing with number used this program such as to find frequency and percentage. It is one of most useful and popular statistical packages, the one that is probably available at more college and university than any other. It includes program for many statistical frequently used in research, from the most basic to the more sophisticated (Gay, 1987:127).
- c. Making a table consist of the statement, the frequencies and the percentage that have been computed
- d. To get a more specific description about the data that have been obtained, the writer classifies them in the form of interval as follows:



00.00 %	= none
00,01 % - 24,99 %	= a few of
25,00 % - 49,99 %	= nearly half of
50 %	= half of
50,01 % - 74,99 %	= best part of
75,99 % - 99,99 %	= nearly half of
100 %	= all of

### 3.4.2 Qualitative Data

The result of interview and observation as the parts of qualitative data is conducted by applying the qualitative method. The initial steps in qualitative analysis is reading the interview transcript, observational notes and documents that are to be analyzed (Maxwel, 1996). As stated by Nunan (1992), in qualitative method all knowledge is relative, that there is a subjective element to all knowledge and research, and that holistic, ungeneralisable studies are justifiable. Moreover, Richard and Cook (1979), argue characteristics of qualitative Research:

- a. Advocates use of qualitative methods
- b. Concern with understanding human behavior from the actor's own frame of reference
- c. Naturalistic and uncontrolled observation
- d. Subjective
- e. Close to the data: the "insider: perspective

- f. Grounded, discovery oriented, exploratory, expansionist, descriptive and inductive.
- g. Process oriented
- h. Valid: 'real', 'rich' and 'deep' data
- i. Ungeneralisable: single case study
- j. Assumes a dynamic reality

