

## **Chapter 3**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter explains the methodology with regard to the attempt of determining the English language needs of the Electrical engineering students. Besides, this chapter describes the research design, the samples, the instruments and the data collected were analyzed and explained.

#### **3.1 Research Design**

The problems that one would likely encounter in gathering data about the learners needs in the targeted language i.e. English are daunting tasks. (Coleman, 1988). However, with the application of the right methods and procedures, it is possible to ascertain the language needs. Although the questionnaire method may not be comprehensive, plenty of information may be obtained through it as the three groups of samples were in an ideal position to provide valuable information. The direct contact of the lecturers' and the employers with students' for a lengthy period will be sufficient to provide the correct and valuable information.

For the purpose of this study, the following methods and procedures were used to elicit specific types of data. They were:

- a) Questionnaires
- b) informal dialogues/interviews.

### **3.2 The Sample.**

The subjects selected to identify the language needs of the electrical engineering students of the PUO. Three groups were felt closely associated to determine the needs are the final semester Diploma students of the electrical engineering students, the group of the English department lecturers lecturing the engineering students of all levels and five selected employers in the Kinta Valley region that accept PUO students to undergo industrial training during the fifth semester and subsequently employ them.

#### **3.2.1 The students**

The batch of students selected for this study were the final semester Diploma of electrical engineering who totaled 124 in number. But for the purpose of this assignment, the researcher only selects 60 students. There were a number of reasons for only selecting the final semester of the electrical engineering students. The reasons are:

- a) they have undergone 5 semesters of coursework which includes a wide range of reference in the field of their study and a duration of 5

semesters of ESP learning conducted by the English Department academic staff;

- b) the students have already undergone one semester of industrial training. Exposure of this nature will sufficiently provide valuable information of the expectation of the prospective employers particularly of their communicative and writing skills;
- c) being the final semester to fulfil the criteria to qualify to obtain the PUO Diploma.
- d) it is strongly believed that a large number of them would further their degree courses in the higher learning institutions. Thus, they would be able to gauge themselves how well the PUO English syllabus have prepared them to follow and carry out references in time to come.

### **3.2.2 The English Department Lecturers**

The department has 8 lecturers in its wing. The eight are solely responsible to prepare, conduct ESP courses and evaluate students periodically from semester one right up to semester six. As mentioned in chapter one, a pass in English is not required or a main criterion in the selection of students to the various courses at all polytechnics in the country. In addition, students will be following a different English program for the next six semesters at PUO. As a consequence, the English department lecturers would provide vital data because they play an intermediary function . They would be playing a key role in preparing post secondary students to follow Diploma courses and simultaneously upgrade them to pursue degree

courses upon completion of the Diploma course. Therefore, the success of its students in the employment, academic field , intensified globalization era and in the rapid science and technology discovery world is to large extent depends on the effort of the English department lecturers and its syllabus. Moreover, they are in direct contact for six semesters that would become a key source of information for the researcher in analysing the needs.

### **3.2.3 The Employers**

For the purpose of this study, the researcher has chosen ten companies that produce electronic components and electrical based products. To identify the employers that offer the PUO students to carry out their industrial training was obtained from the head of the Electrical department. In addition, these companies employ personnel with electrical engineering background and accept PUO students to become understudy during the industrial training. Furthermore, in the view of the researcher the companies enlisted for the study utilize foreign technology and have foreign equity especially American. Therefore, the selected employers could provide valuable data for the study to obtain a more complete picture of the language needs of the electrical engineering students. Besides, they would know what the job requirements are and how the needs could be met by the graduates.



### 3.3 Instrumentation

The main instrument for this research is the questionnaire. Three different sets of questionnaire were designed to elicit the English Language needs.

The questionnaire were devised for the three groups of subjects:

- a) the students,
- b) the English lecturers, and
- c) the employers.

For the study, three sets of questionnaires were used to gather the necessary information. The questionnaires were a modified version of the questionnaires used by Chow U. T. (1995) in her research. The questionnaires were modified to suit this particular study.

The questions in the questionnaires are very much interrelated and covered the main areas of the study which are the needs for reading, writing, listening and speaking. It requires students, lecturers and selected employers to rate their experience on the degree of frequency and degree of importance in the various language skills.

There were many types of tools that a researcher can use to analyze needs. Johnson (1993) suggests the use of questionnaire and interviews to obtain data.

According to Richerterich (1983) needs analysis can also be carried out from major scientific surveys to informal tools by an individual teacher for his class.

In addition, informal dialogues was also used to gather information for the study. Informal dialogued were held with the English and Electrical Department and lecturers'.

The purpose of using a variety of tools was to achieve validity of findings. The questionnaire method was used as the main instrument for the study for a number of reasons:

- a) it can administered conveniently to a large quantity of samples.
- b) The subjects will be more than willing to give authentic information as their identity will not be revealed.
- c) It is time saving and able to gather numerous data easily.

### **3.4 The Students Questionnaire**

The questionnaires for the students is divided into four parts. The first part consisted of 11 items which attempted to find out the students personal particulars such as the qualification used to gain entry into the PUO and grade obtained in English at SPM level. The subsequent 6 items require the students to quantify the number of engineering subjects taught in English and the percentage of coursework and references done in the above mentioned language. These questions were meant to identify the fundamental proficiency among students and ascertain the need of English for reading purposes.

Part II is made up of 10 items. Items 11 and 12 were meant to evaluate their abilities in the language skills and to determine the importance the language skills as perceived by the students themselves.

In this way, relevant materials for teaching can be prepared to suit the needs of the students.

Items 14 to 17 were meant to identify the needed English sub-skills for them to follow the course effectively. Moreover, these items were meant to identify the important skills for them to function effectively in the employment domain in the future.

Items 19 to 21 were constructed to determine the common problems faced by students while reading, speaking and writing. The questionnaires were designed to identify the needs so that remedial can be done to the syllabus and teaching methods at the PUO.

Part III were meant to solicit the opinions of the students concerning the usefulness of the materials used in the English lesson at the PUO. This part is made of 10 items. Items 26 and 27 is meant to obtain the opinions of the students regarding the types of activities that suit their ability and size of an English class ideal for optimum learning. Item 28 in this part enables the students to evaluate whether the English course are beneficial and equip them adequately for future employment and to pursue engineering studies. In item 29 students are required to state the reason if the English courses does not appear useful and beneficial.

Part IV was meant to identify the extent of English needed and its purpose while undergoing industrial training. Part IV consists of 7 items. This part was meant to determine whether the PUO English course has considered the needs of the employers who are the receivers of the product churned and moulded by the PUO. It is believed that the language

skills would enhance their effectiveness besides their engineering competence.

### **3.5 The Employers Questionnaire**

The employers sample is made of 13 items. Items 4 and 5 attempt to gather information regarding the importance of English during the industrial training period for the PUO students. It is meant to determine the extent of its usage and its usefulness in order to analyse needs in areas relevant to engineering. While item 6 is to quantify the amount of English used during the industrial training period. Item 6 can help to rectify and modify the present English course in terms of its requirement to the employment scenario.

Meanwhile, item 7 was meant to identify the degree of importance of language skills for PUO Electrical Engineering students. This would identify the amount of time to be allocated to the various skills and the types of materials need to be developed by course facilitators.

As for items 8 to 11, employers need to identify the English Language sub-skills that is more important than the others for the PUO students. The purpose of this item is to inform course facilitators and designers of the current need of employers for the students to become highly productive and desirable in the organization.

Item 12 is to list the shortcomings of the PUO students in the various aspect of the usage of English. Item 12 will allow the researcher to make recommendations for employers at the present stage of study and the years to come.

Item 13 is to identify the overall impression of the employers of the quality of the PUO students in the command and usage of English. The purpose is to determine the effectiveness of the English and the syllabus and to make recommendations.

### **3.6 The English Lecturers Questionnaire**

The questionnaire for this subject is divided into 4 parts. The first part is to gather information on the lecturers' experience and the courses they are assigned to teach in the final semester.

Part II and III correspond to the students questionnaire. The data obtained from the students and from the lecturers will be co-related and compared to study the differences and similarities to establish a consensus and needs for the PUO Electrical engineering students. Parts II and III will establish the amount of reference and coursework done in English, the ability of the Electrical engineering students in the English Language skills as perceived by the lecturers', students' abilities in the various English language sub-skills and common problems faced by students in ESP course. With these questionnaires needs analysis could be carried out to help students to upgrade their competence in the English language to meet the current needs. As for Part III, the questionnaires were meant to evaluate the capability of the ESP program, the problems faced by the students in the process of following the existing ESP program at the PUO,

the suitability of the ESP materials and the problematic areas in the ESP course conducted at the PUO.

Part IV solicits the opinions of the lecturers' concerning the materials, testing, strategies for effective learning of the ESP course, ideal size of an ESP class, the types of preferred activities in an ESP class, emphasis of the ESP course, suggestions on the usefulness of learning ESP, the mechanism to upgrade the level of ESP and lastly further suggestions besides the ones found in the questionnaires. Thus, Part IV would assist the researcher to support recommendations that would be made in the final chapter of this study. Furthermore, the lecturers' are in the best position to ratify and consolidate for the suggestions that is forthcoming.

### **3.7 Administration of the Questionnaire.**

The researcher will first obtain the permission from the English department head to administer the questionnaire. Then, the student list would be obtained once permission granted to randomly select the 60 student samples. Subsequently, a date and time suitable for the administration of the questionnaire would be negotiated so as not to interfere much with the core business of the PUO.

On the day of the administration of the questionnaire, the researcher will be present to explain the purpose of the study and followed by explanations to the items in the opinion of the researcher that could pose some extent of uncertainty and doubt to the understanding of the

students sample. The Bahasa Malaysia translation was felt unnecessary as the samples are in the final semester and have undergone 5 semesters of ESP at the PUO under capable lecturers and one semester of industrial training.

Meanwhile, the lecturers' sample would be handed to the lecturers personally and would be collected two days later as not to burden them and provide sufficient room and space for reasoning to arrive at the most suitable selections. It is anticipated that the lecturers would not encounter any problems to make selections of items provided as they are professionals lecturing at a reasonably advance level.

Finally, the employers questionnaire would be administered over a period of two weeks after shortlisting them from the list provided by the Electrical department whereby students undergo the compulsory industrial training during the 5<sup>th</sup> semester. A letter was obtained from the Head of the Electrical Department to facilitate the administration of the employers' questionnaire. (See Appendix C). Each item would be clearly explained. Appointments will made prior to the administration of the questionnaire. This arrangement would facilitate particularly the executives as they are required most of the time in the organization for key matters and jobs.

### **3.8 Development of the Questionnaire.**

The researcher depended on a number of sources for the development of the questionnaire for the study. Firstly, the researcher referred to the course outline and the objectives stipulated . Subsequently, numerous

discussions were held with the graduates currently employed, present final semester students at the PUO and interviews held with the Head of English Department and a senior lecturer who was involved in the designing of the syllabus in use at all the polytechnics in the country. Besides, several sources were referred to, including Richterich (1981) and Stufflebeam, McCormick, Brinkerhoff and Jones, K and Roe, P (1976) Another vital source of reference was Chow, U.T. (1995) research questionnaire used in her study to determine the needs of science matriculation students.

### **3.9 Research Proceedings**

A pilot study was not done because the PUO was not keen in having too much interruptions to the smooth running of the course. Furthermore, the students will be sitting for their semester examinations soon.

Errors in the questionnaire were greatly reduced due to the guidance and valuable information given by a senior English Language lecturer. He was familiar with research procedures as a similar study of this nature had been carried out earlier by the Technical Education Division of the Ministry of Education.

### **3.10 Method of Analysis.**

A descriptive approach has been taken by the researcher to state the English Language needs of the Diploma of Electrical Engineering students'. The information obtained from the questionnaire and informal dialogues



were presented in the form of frequency counts and percentages and rank order relationship. Comments and responses that could not be quantified are described where they are found to be relevant.

In cases where the two groups were asked the same questions, the results were compared to see if there were similarities and differences in their opinions.

### **3.11 Conclusion**

In this chapter the researcher has attempted to describe some of the instruments used, contents of the questionnaire and the samples.

In the next chapter, the data collected will be analyzed systematically under various headings.