

CHAPTER 3: RESEARCH DESIGN

3.1 Introduction

This chapter describes the methods and procedures employed in obtaining the information required for the purpose of this study, i.e. to identify the English language needs of aircraft maintenance technology students in Kolej TAFE Seremban. The methods employed for collection of the required data and the rationale for the selection of the methods are explained in detail. It also elaborates on the methods of data collection, the instruments used for the purpose and the method of administration, the selection of participants and the analysis of data.

3.2 Background of Students

The medium of instruction for the Diploma in Aircraft Maintenance Technology course at the college is English. Besides attending lectures, tutorials and practical lessons, students are also required to undergo on-job training, hereafter referred to as OJT. OJT is a compulsory component of the course liaised with industry partners, who are organisations engaged in aircraft maintenance engineering, and it is conducted during their semester holidays. Students are required to do 14 weeks of OJT during their final semester of their course. In college, students are exposed to the theoretical aspects of aircraft maintenance and also practical sessions at the workshop and hangar. However the amount of practical experience that can be gained in college is limited as there are only two small aircraft in the hangar. However, the maintenance section of airlines and other companies engaged in aircraft maintenance engineering consistently work on a variety of aircraft. During OJT, students have the opportunity to observe the work carried out by qualified maintenance personnel on different aircraft and also acquire practical skills by carrying out the tasks delegated to them. The aircraft manufacturers' maintenance manuals and job sheets are in

English. The language used for written and spoken communication in the industry is also English. Therefore, students should be equipped with the necessary English language skills not only to understand and participate in lectures, tutorials and practical lessons but also to perform satisfactorily during their OJT.

3.3 Research Design

Against the backdrop of students as described in 3.2, I will attempt, in this study, to identify the target needs and the learning needs described by Hutchinson and Waters (1987). Target needs are what the learners need to know in the target situation, and learning needs are what the learner needs to do in order to learn. Hutchinson and Waters' (1987) framework for a target situation requires determining the following: (i) why the language is needed, (ii) how it will be used, (iii) who the learner will use the language with, (iv) where and when it will be used, and (v) what the resources for teaching the language are. Based on these five criteria, the research questions for this study are formulated:

1. What are the perceptions of students regarding the needs of the employers?
2. What are the employers' expectations of the ESP proficiency of the students?
3. What are the perceptions of the industry personnel (employers) regarding the ESP needs of the students?
4. What are the perceptions of students regarding their ESP proficiency?
5. What are the perceptions of the lecturers regarding the ESP needs of the students?
6. What are the perceptions of the lecturers regarding the ESP proficiency of the students?

The main stakeholders in this course are the students, the lecturers and instructors, and the prospective employers of the students.

3.4 Participants

The questionnaire method was selected to obtain data from students as it facilitates collection of information from a large number of participants. This questionnaire was administered on a sample of students in the fourth, fifth and six semesters of the course. This was because these students had been pursuing the course for about a year at the minimum and would have obtained a better understanding of the course. In the first semester, the students are taught general subjects like Mathematics, Science and the subjects mandated by the Malaysian Qualifications Agency (MQA), namely Malaysian Studies and Moral Education. The core subjects directly related to aircraft maintenance are taught in the subsequent semesters. The students selected have also attended a period of OJT at various organisations. Therefore they are in a better position to provide information on their ability to cope with the requirements of the discipline. The participants were selected at random regardless of their academic ability.

The interview was the preferred method to obtain information from the lecturers and instructors as it allowed them a wide space for comment without being restricted by the limitations of a questionnaire. Moreover, the researcher, with little or no knowledge in the subjects taught, was not able to anticipate the problems encountered by the academic personnel concerned. Five lecturers were interviewed. Four of them had worked as maintenance personnel with commercial airlines and organisations involved in aircraft maintenance or the Royal Malaysian Air Force for varying lengths of time prior to joining the college. They were also able to provide information from the viewpoint of the third main stakeholder, the future employers, as they had experience working with new staff and trainees during their tenure in the organisations concerned. The fifth is an expatriate lecturer from India who was previously attached to the Indian Navy's Air Wing and also taught at a college in India.

3.5 Research Procedure

The instruments used are a questionnaire and interviews. Permission was first obtained from the principal of the college to administer the questionnaires to the participants and to interview the lecturers and instructors from the Department of Aircraft Maintenance Engineering. The questionnaire was used to collect data from 100 students in total while five lecturers were interviewed. As the researcher is a lecturer at Kolej TAFE, the questionnaire was administered to the selected students in class with the permission of the lecturers concerned, thus eliminating the problem of questionnaires not being returned. This also allowed the students to seek clarification from the researcher on any doubts they encountered in answering the questionnaires. The lecturers were interviewed individually in a confidential environment. They were assured that any information imparted would be strictly for the purpose of this study and would only be accessible to the researcher, the supervisor and the authorities involved in the assessment of this report. The responses to the questions were recorded in writing by the researcher.

. The questionnaire was designed to gauge the general English proficiency level of the students, their ability to understand lessons and participate in tutorials and to perform satisfactorily during OJT. This would help to incorporate the necessary components in any English course designed for the purpose. The interview was designed to obtain feedback from the lecturers on the students' ability to understand the subject matter and to perform up to expectations in class, examinations and OJT. The interviews would also enable the lecturers to share their views on perceived English language limitations that hindered the teaching-learning process and provide suggestions to address the problems. As the lecturers were previously employed in airlines and other companies involved in aircraft maintenance, they are also able to present viewpoints from the perspective of the students' future employers.

3.5.1 Questionnaire

The researcher teaches the Communication Core module for the students of the Diploma in Aircraft Maintenance Technology course. The components of this module, which is taught in the first semester of the course, include the writing of memos, business letters, short reports and minutes of meetings. The module is geared towards equipping the students with the knowledge and skills to write these documents at the work place. The module is taught on the premise that the students, with at least a pass in English at SPM level, have the required level of English proficiency to write these documents. The researcher therefore drew upon his experience in having taught these students in designing the questions for the questionnaire. It is the researcher's opinion that some of the students lack sufficient proficiency in English to perform well in the aircraft engineering course and will benefit from a remedial EGP course to improve their language proficiency and also an ESP course geared to their specific needs. The students do not take any other English language modules in subsequent semesters and the researcher does not have the opportunity to monitor their progress in the course. However, the researcher has had the opportunity of having informal discussions with the lecturers and instructors from the department concerned. The lecturers concurred that some of the students faced problems understanding the subject matter and communicating with their lecturers due to a lack of proficiency in English. The questions were therefore aimed at obtaining the students' opinions on whether they were adequately equipped to meet the demands of coursework, examinations and OJT.

The questionnaire comprised six sections, namely respondent's background information, the use of English in teaching and learning, the use of English during on the job training, and students' perceived English language needs.

a) Respondent's Background Information

This section is aimed at obtaining information on the participants' familiarity with and

the frequency of the use of English. It elicits information on the participants' mother tongue or first language, the language used at home, in class, in the college and in conversations with friends. This provided an idea on the students' familiarity with the language and the frequency of use, and how comfortable they are in using English for communication. The section also required students to give a personal evaluation of their competence in the four language skills, namely listening, speaking, reading and writing.

b) Use of English in Teaching and Learning

The aircraft maintenance course at the college is taught in English. Information obtained from the lecturers and instructors of the course reveal that the language of the instruction manuals used and the language of communication in the industry is also English. Therefore, proficiency in English is a must for the teaching and learning of the course as well as in the work place. This section attempts to ascertain students' awareness of the importance of proficiency in English to perform well in the aircraft maintenance course.

c) Use of English during OJT

As indicated earlier, the participants surveyed in this study have attended at least one session of OJT and thus have been exposed to their future working environment. This section aims to explore the students' awareness and appreciation that English proficiency is indispensable in the aircraft maintenance engineering field.

d) Students' Perceived English Language Needs

Having pursued the course for at least three semesters, it is assumed that the students would be able to identify weaknesses that hamper their learning and performance of OJT. The questions require the participants to identify the areas in which they face problems in listening, speaking, reading and writing in English. This would help identify the needs of the students in the formulation of an English course for them. The final question provides

an opportunity for the students to provide details of any problem faced which they feel is caused by the lack of particular English language skills.

3.5.2 Interviews

The lecturers and tutors are important stakeholders in the course as they are entrusted with the responsibility of imparting the necessary knowledge and skills as well as to monitor the students' performance during OJT. It would therefore be of utmost importance to obtain feedback from them for any needs analysis related to the course in aircraft maintenance engineering. Moreover, the majority of the lecturers and instructors have many years of experience working in the industry and would therefore be able to provide feedback from the prospective employers' view as well. As mentioned earlier on in the chapter, the researcher has had the opportunity of informal discussions with the staff. However, there has been no deliberate attempt to obtain feedback on specific areas. The interview, it is felt, would be the most suitable tool to obtain information from these academic staff for this needs analysis. According to Creswell (2003 p.186), interviews are "useful when participants cannot be observed directly and allows researcher 'control' over the line of questioning". As the researcher is not privy to observing the students in class or during OJT, the interview with the lecturers would be hugely beneficial in identify the English language needs of the students. Furthermore, Gatehouse emphasizes that because ESP requires comprehensive needs analysis and because the learning-centred curriculum is not static, it is only the instructors who are in the best position to identify changing learner needs and who are in the best position to ensure that all students receive a balanced diet of language (Chapter 2). In the case of this study, it would be the core subject lecturers who would be able to identify the learner needs as they are the ones who have the most direct contact with the students. The English lecturer would then plan the curriculum from the input provided by the other lecturers.

The participants were asked questions on the students' ability to understand the subject matter taught, ask questions to clarify doubts, answer questions, and participate in discussions during lectures and tutorials. They were also asked to comment on the students' ability and readiness to communicate with them in English. They were asked to reveal if code switching, i.e. alternating between two different languages, was practised in class by the lecturers and students, and if used, the frequency of use. Questions on information from industry partners on students' performance during OJT were also included. Finally, they were asked to provide suggestions to remedy the students' perceived weaknesses in English, to provide input on what they think should be included in any English course formulated for the students and to comment on the viability of using material extracted from aircraft maintenance manuals in the English classroom.

3.6 Data Analysis

The responses to questions in Sections A, B and C and Question D1 were tabulated manually for analysis. The responses were then analysed to obtain the frequencies and percentages. The responses to Question D2, being an open-ended question that allowed students to describe any problem they faced due to a lack of proficiency in English, were analysed to identify the students' perceived needs.

The answers to interview questions provided by lecturers and tutors were analysed to identify the weaknesses cited and suggestions made to address the problems. The findings of the analysis were then summarised.

3.7 Summary

This chapter has provided information on the research design, the background of the participants and the rationale for their selection, the tools used and the methods of data collection and data analysis.