

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter first provides a description of the subjects, the data collection procedures and the instruments employed in this study. This is followed by a presentation of the training procedure, instructional materials and data analysis involved in the study.

3.1 Research Design

This study employed an experimental design with motivational techniques as a treatment procedure in improving reading skills. Two classes of first year Electrical and Electronic Engineering students from the University Sains Malaysia (USM) of similar academic ability were selected. Both classes were given Pretest, Posttest and Index Reading Awareness as instrument measure to identify reading skills abilities. For the Experimental group, the effects of motivational techniques on a tertiary level reading class were observed. The Control group used the traditional-presentation-process-evaluation technique of reading.

3.2 Selection of subjects

The two classes selected for this study comprised 52 students. From these two classes, one class was randomly selected to be the treatment group for this study. Two different teachers were involved in this study. I taught the

Experimental class. While the subjects in the Control, a different teacher taught the group. The treatment class had 27 students. The other class, the Control Group, consisted of 25 students. However, one of the students in the Control group missed two out of four measures that were conducted. Consequently, this student's scores were discarded from the analysis. A profile of the selected sample in terms of gender and ethnicity for the Experimental and Control groups is shown in Tables 3.2.1 and 3.2.2.

As seen in Table 3.2.1, 77% subjects of the Experimental Group were male and the remaining 22% were female. In the Control group, 64% were male, 36% were female. The male students constituted more than half of the total number of students in both the groups.

Table 3.2.1 Distribution of students according to gender

Gender	Experimental Group (n=27)	Control Group (n=25)
Male	21 (78%)	16 (64%)
Female	6 (22%)	9 (36%)

Table 3.2.2 presents the distribution of students according to ethnicity. Malay students comprised the largest number of students: 48% in the Experimental group and 60% in the Control group. Chinese students in the Experimental group were 33% and 28% in the Control group. The remaining 19%

and 12% were Indian students in the Experimental and Control group respectively.

Table 3.2.2 Distribution of students according to ethnicity

Race	Experimental Group (n=27)	Control Group (n=25)
Malay	13 (48%)	15 (60%)
Chinese	9 (33%)	7 (28%)
Indian	5 (19%)	3 (12%)

The students in both classes are in the age group of 20 to 21 years. Information on students' economic background was gathered from the Registrar Office. It was found that majority of the students was from the same socio-economic background that was middle class group. They were of above average and average ability in the English language. The subjects were chosen from English language proficiency classes, Technical English level IV (LKI 460), which is a compulsory subject for those who are not exempted. They were required to take three hours of English per week for a semester. The students were streamed according to their SPM 1119 English result of A1 to C4 or having a B grade in their English Matriculation result. Table 3.2.3 gives a breakdown of the grades the student scores in their SPM 1119 English for both the Experimental and Control Group. To describe the distribution of SPM English result better, the

SPM results were divided according to students' ability that is good, A2 to A1; average C4 to C3.

Table 3.2.3 shows those 67% subjects of the Experimental group obtained above average results in their SPM 1119 English and 33% got average result. While, in the control group 60% got above average results and 40% obtained average result. The overall performance of subjects in both groups showed almost equal distribution in terms of ability between good and average. This indicates that the students in the Experimental and Control group were similar in terms of English language ability. Therefore, the subjects of both groups were suitable to make comparison.

Table 3.2.3 Subjects' Overall performance in SPM English results

SPM 1119 English	Experimental Group (n=27)	Control Group (n=25)
Above Average (A2 –A1)	18 (67%)	15 (60%)
Average (C3-C4)	9 (33%)	10 (40%)

3.3 Data Collection

There were three instruments employed in this study: Index of Reading Awareness, Pretest and Posttest and finally, students' work. The first two instruments provided two sets of scores. Then there was qualitative data obtained

from students output in the reading tasks, feedback, dialogue journal and interview.

3.3.1 Index of Reading Awareness (IRA)

An Index of Reading Awareness (IRA) a twenty-item multiple-choice questionnaire, which was originally designed by Jacobs and Paris (1987), was administered in this study. McLain, Gridley and MacIntosh (1991) later adopted the questionnaire as part of their research study. In this study, I have adapted the Index of Reading Awareness (IRA) which was used by McLain et al (1991). Minor modification was made such as the usage of word 'story' in the index. The word 'story' was changed to reading text and article. The amendment was made according to suitability of items to engineering students; reading text is seen more appropriate to 'reading a story' to the subject of the study.

The questionnaire consists of 20 items (Appendix A). The items are divided into four categories: evaluation, planning, regulation and conditional knowledge. Each question is given three different scores, 0 – for inappropriate response, 1 – partially adequate, and 3 – for strategic response (Appendix B). McLain, Gridley and McIntosh (1991) have tested the reliability and validity of the Index of Reading Awareness (IRA). Ranjit Singh (1998) in his study to measure students' awareness on metacognitive reading skills has also used the IRA. He agreed with McLain, Gridley and McIntosh on the conclusion that IRA was suitable and acceptable to measure metacognitive reading awareness if it is used as a total score. In this study the IRA was given to students of both the

Experimental and Control Group prior to treatment. The initial purpose was to measure the subject's reading awareness and also as a measurement indicator to compare students' performance before and after the treatment. The IRA was later given to the students of both groups at the end of the training phase.

3.3.2 Pretest and Posttest

According to Mehrens and Lehman (1991:4) the term assessment "is used broadly, like evaluation; or it is often used to indicate the use of both formal and informal data gathering procedures and the combining of the data in a global fashion to reach an overall judgement". Therefore, in this study, in addition to the Index of Reading Awareness (IRA), Pretest and Posttest were also used. The Pretest was administered prior to actual teaching of motivational techniques to assess students' initial levels of reading comprehension. It is also used to establish a baseline for comparison of the subjects' performance of the Posttest. The same test was used as a Posttest at the post-treatment stage.

In this study a cloze assessment was used in gaining an understanding of a group's performance. Ryder and Graves (1988) note that the use of cloze assessment as an informal assessment in a classroom have the advantage of being highly sensitive to students' performance, beliefs and reflections on the content addressed in a given classroom. A study conducted by Low Bee Imm (1993) on using cloze test at USM indicated that it can be substantially reliable and valid as a measure of language proficiency since it appears to correlate with the TOEFL, and SPM 122/3222 English exam.

The cloze test comprised two expository reading passages. Each passage was approximately 200 to 300 words in length with every eighth word being deleted. A pilot test was conducted to ascertain the suitability of the passages, test items and options. In the initial testing two versions of tests were provided and given to two lecturers of English and four engineering students. The first set consisted of three passages with every fifth word deleted, while the second set every eighth word was deleted. The mean score and the standard deviation of the pilot test are mentioned in Table 3.3.2.

As can be seen from Table 3.3.2, the subjects mean scores for Set B for passage 1, passage 2 and passage 3 was 9.0, 10.17, 21.33 respectively. The mean scores in Set B is higher than the mean scores in Set A which was 6.0, 12.33, 14.0 with an exception for passage 2 in Set B. The mean score for passage 2 in Set A was 12.33 as compared to 10.17 in Set B.

Table 3.3.2 Mean Scores of Pilot Test

	Total Score	Mean Score	s.d.
Set A (fifth word deleted)			
Passage 1	36	6.0	2.00
Passage 2	74	12.33	3.67
Passage 3	84	14.00	8.10
Set B (eighth word deleted)			
Passage 1	54	9.0	3.58
Passage 2	61	10.17	4.99
Passage 3	128	21.33	8.80

From the obtained score and suggestions made by the two college level lecturers the cloze tests of set B was selected. Passage no. 2 of set B was dropped out from the selection due to unsuitability of test items. The cloze test (Appendix C) was then given to the Experimental and Control group of this study. The students were given fifty minutes to complete the test.

To determine the scoring of the cloze assessment, I have used McKenna's (1976) recommendations to only accept exact word answers. Following the recommendations made by McKenna (1976), who claimed that in order to maintain the objectivity of scoring only the exact word should be accepted. Henle and Selders, (1984), as quoted by Ryder and Graves (1998), assert that scoring of synonyms has shown to reduce test reliability and exact word replacement scoring has shown to correlate significantly with informal reading inventories as well as standardized reading tests (Smith and Zinc, 1977). In addition, Ryder and Graves (1998) claim that in using exact words is more efficient as it reduces the time necessary to determine if a synonym is acceptable. The Posttest was administered at the end of the training phase of this study.

3.3.3 Students' output from reading tasks

Throughout the eight weeks, qualitative data were collected from multiple sources. These included students' written work, feedback and dialogue journals. The data collected examined students' understanding and perceptions of the selected motivational techniques used in the reading class. In addition, an interview was carried out to clarify some ambiguities and doubts over the study

and later triangulated with the data collected from students' output from reading task, feedback and dialogue journal. In this study four students were interviewed. The interview schedule is included in Appendix D. The selection was based from the students' performance on the Posttest. Two students with the highest gains and two students with the lowest gains were selected randomly.

3.4 The training procedure

The training was carried out in the Experimental group over a period of eight weeks, where the students received a total of eight-eighty-minute lessons. The training was grounded in the selected motivational techniques. As mentioned earlier in Chapter 2, two techniques were used to assist students in reading comprehension skills: relevancy and expectancy.

To further demonstrate how these selected motivational techniques improve students' reading skills two approaches were used. The two approaches were task-based approach and cooperative learning. For the first technique on relevancy a task-based approach was used. As for the second technique on expectancy cooperative learning was employed.

The task-based language classroom is learner-centred. The reason in choosing this approach is that it motivates students to develop their reading skills. As Savignon (1991) indicates, the task-based approach supports the view that reading is an active process and that when a reader reads he is actively participating in a complex negotiation of meaning. As students take part in discussions to complete the tasks, the negotiation of meaning of the text becomes

possible. Thus, this enhances students' ability to derive meaning of the reading material and subsequently improve their reading skills.

The tasks were divided into four components, which are goals, input, activities and roles (Nunan, 1989). A framework representing the task is provided in Figure 2.

According to Nunan (1989) goals represent the aims of doing the task, role refers to the part of a teacher as facilitator and student as active participator in the task, input refers to the selection of materials provided for the tasks. Activities refer to the choice of tasks in assisting students to fulfill their goals and settings involve the whole classroom such as by pair work or group work. Using Nunan's (1989) framework as a model for the task component a diagram representing the task in this study is presented in Figure 3.

The second motivational technique that was used was cooperative learning. In cooperative learning, students worked in-groups for the entire task. It is understood that peers working together in cooperative learning or collaborative groups can also provide a means of support during strategy learning (Conley, 1990). Furthermore, group improves the quality of student talk, helps individualize instruction and allows students to work at their own pace (Long, 1990).

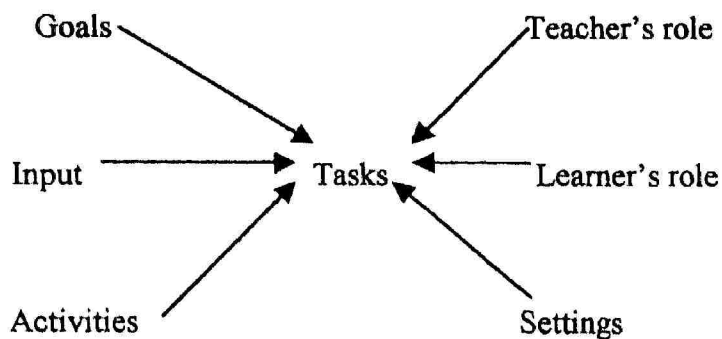


Figure 2 Task-based Approach Framework. Source: Nunan, 1989

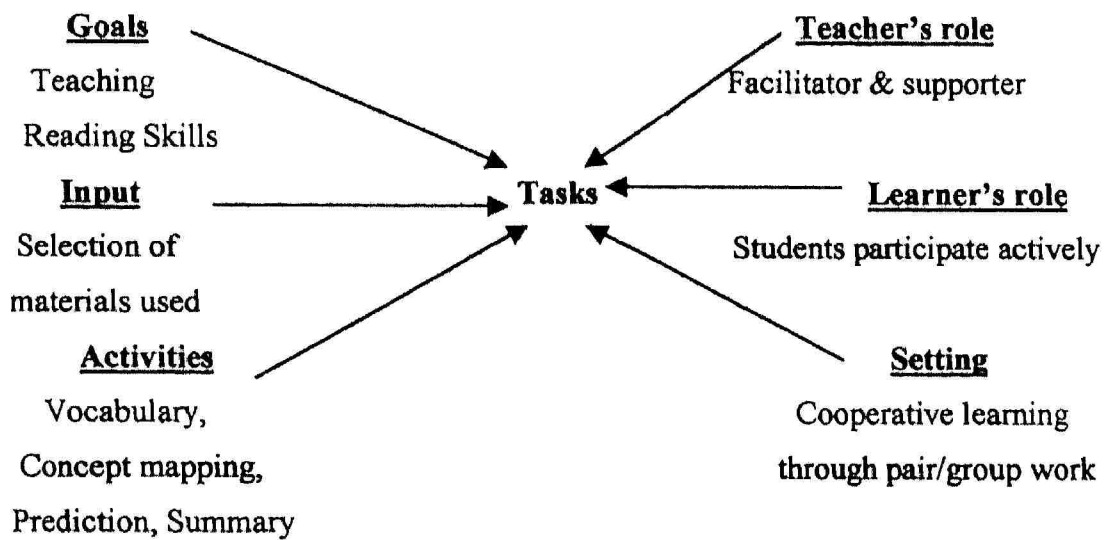


Figure 3 - Framework on Task-based Approach for this study
(Adapted from Nunan, 1989)

In the initial stage of Module 1, teacher took charge of putting students into groups. This is to encourage students of different abilities to mix and help one another. As students moved into the second phase of learning in Module II, the students were allowed to choose their own groups they wanted to work with. At the end of each lesson, an evaluation form was given to the student to elicit information on the content, the nature of the tasks, suggestions for future lessons and perception of the tasks. This has allowed some flexibility in preparing the lessons while sustaining the interest of the students. The student was required to interact actively with both fellow students. The teacher in this case acts as a facilitator, providing support and assistance to students, and when necessary, directed the discussions. At times the teacher was also involved in the discussion and provided feedback. A sample evaluation form is included in Appendix E. Hence two approaches were used over 8 weeks to teach motivational techniques to enhance the students' reading skills.

The other task components, goals and activities will now be dealt with in some detail in the training procedure.

3.4.1 Instructional Procedures

The goal of task, which is to improve students' reading skills, was determined at the beginning of the study. Once the goal was determined materials were prepared and tasks were planned to teach reading skills to the Experimental group, over a period of eight weeks. Realizing that students differ in their capability of comprehending, I decided to teach reading skills that students can

use in a wide variety of reading situations such as comprehension monitoring like predicting, skimming, scanning deriving meaning of words and drawing conclusion. The reading skills taught are summarized as follows:

- (i) making predictions about text context and development of ideas
- (ii) skimming to obtain the gist of text
- (iii) scanning to locate specific information
- (iv) deducing the meaning of unfamiliar words
- (v) drawing conclusions

The selection of the reading skills was based on the skills that students can use overtime and are relevant to the students. All the skills mentioned above will allow students to monitor their reading and incorporate the skills when necessary. However, in this study because of restricted time frame only five reading skills were chosen. The activities for the task were grounded on the selection of the reading skills.

The tasks consisted of pre-reading activity followed by one or more activities. The selection of materials involved two modules. Module 1 covered a period of 5 weeks, whereby, the teacher determined the tasks and selection of materials. The activities, which centered on the tasks, were designed to enable students to acquire the reading comprehension skills, while arriving at meaning. The selected activities were aimed to allow students to participate actively in class and to exploit the materials used.

However, before each lesson was conducted, I would provide explanation on the intended purpose of the activity. Students need to learn the what, why, when and how of strategy use if the goal is for them to use these strategies on their own to control their reading and learning (Paris, Lipson & Wixon, 1983).

The activities designed included concept mapping, deriving meaning of words, predicting text, jigsaw reading and summarizing. These activities required the students to predict, skim and scan to locate information. Concept maps are powerful tools to help students locate, select, sequence, integrate and restructure information (Jones, Palincsar, Ogle and Carr, 1987). Prediction serves to aid comprehension by activating schemata to make text more familiar to students (Grabe, 1991). Prediction can help students set a purpose for reading drawing upon prior knowledge (Harris & Cooper, 1985), increase their attention to text objectives, increase their motivation to read (Nichols, 1983), instill curiosity (Shablak & Castallo, 1977) and heighten motivation (Lunstrum, 1981). Summarizing has been shown to be related to an increased comprehension of the material being summarized, learning of new material, recall of the text, vocabulary development, and the promotion of critical reading (Hill, 1991; Pearson and Fielding, 1991). The lesson plans for the five tasks are presented in Appendix F.

In Module II for duration of three weeks period, students were given the choice to select their own materials and choose whichever tasks have been taught in enhancing their comprehension skills in reading. They were also encouraged to work and given opportunities to make choices about their learning. In a study

conducted by Schiefele (1991), students who were allowed and encouraged to choose their own reading material expended more effort in learning and understanding the material. Some selection on students' choice of work and materials were included in Appendix G.

The shifts from teacher-determined tasks to learner-determined tasks allow students to take control of their own learning. Studies have indicated that students learn best when they are able to see the benefit of the lesson provided to them. Thus, the role of the teacher here is more of a facilitator, guiding and assisting the students allowing them the time and space necessary as they gain control of their learning independently.

At the end of the training period, in week 9, the Posttest and IRA were given to students of the Experimental and Control classes again to determine whether there was a difference in students' performance in the reading skills after using the motivational techniques.

3.4.2 Instructional Materials

Before administering the study certain factors were considered prior to selecting the materials such as whether the selection fulfill the objective of the study and appropriateness to both the proficiency level and interest of the students. The selection of materials was expository in nature. This is to provide students exposure of tackling such texts in their content-area studies. In addition, it enables students to use the skill learned to their everyday use since most of their academic texts are expository in nature.

Research has indicated that most learning from reading, both in and out of school, depends on the ability to read and understand expository text. Further consideration is the materials selected must interest the students because students are more likely to force themselves through a difficult but interesting reading passage than through a relatively easy passage in which they have no interest (Clarke & Silberstein, 1979). As indicated by Clarke and Silberstein (1979), interesting materials will in turn motivate students to participate actively in the learning situation and one way to interest and motivate students is to select materials that relate well to their background knowledge.

The materials selected were varied according to the required reading skills. For the first week students were given shorter passages for training purposes such as locating main ideas through skimming and scanning. The length of the passage was gradually done accordingly in the next few lessons. Most of the materials used in this study were adapted from Oxford English for Electrical and Mechanical Engineering. The teachers and researcher judged the selected materials in terms of suitability for the students, such as vocabulary, content and linguistic level. Students are also given opportunity to choose their own materials. Giving students choice is viewed as supporting student's decision making, but this is true only when those choices are perceived as equal/structured in such a way that the student's choice is guided by interest and not only by an interest to minimize effort, protect feelings of self-worth, or avoid failure (Ryan et al., 1985).

3.5 Data analysis

The first data set comprised the scores from the Index of Reading Awareness (IRA). The total IRA scores for individual students were recorded and percentages calculated. The scores were then divided into five categories according to the following ranges: Category I, 16-20; Category II, 21-25; Category III, 26-30; Category IV, 31-35; and Category V, 35-40. The second data set comprised the Pretest and Posttest of both Experimental and Control groups. These data were analyzed using the Statistical Package for the Social Sciences (SPSS) programme (version 10). The raw scores for each subject of the Pretest and the Posttest were converted to percentage scores. From those scores, average percentage scores were put in order and grouped according to the following ranges: high, 68-99; medium, 50-67; low, 0-49. Descriptive statistics such as means, percentages and standard deviations were employed to show the overall performance of the Experimental and Control group on the Pretest and Posttest. A t-tests was used to determine whether there were significant difference in the Experimental and control group performance on the Pretest and Posttest.

The third data set comprised students' output from the two modules and feedback in the evaluation sheets and dialogue journals. These were qualitatively analyzed to examine students' understanding and perceptions of the use of some selected motivational techniques in reading classrooms. In addition, interview session was carried out. The subjects for the interview were based on their performances on the Posttest. Four students were selected: two with the highest gain scores and two with the lowest gain scores. The interview session was

carried out immediately after the eight-week training period. The data collected during the interviews were triangulated with the third data set.

In short this study employed an experimental design using two classes of 52 students. The subjects were exposed to using selected motivational techniques in reading classroom over a period of eight weeks. The chapter also covers data collection procedure and data analysis involved in this study.