CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

This chapter will look into the literature related to the study. This would include issues like English for Specific Purposes (ESP), needs analysis, and preparation of technical reports. This chapter will also include literature on the description of the four basic sentence-types, explanation about the nouns, scientific terms as well as technical terms.

It will begin by examining the role of ESP and then will look into the importance of conducting needs analysis. ESP has generated considerable attention and research in recent years as a means of identifying the significance of various needs of English learners.

Needs analysis is included in this chapter because it is the process of determining the things that are necessary or useful for the fulfillment of a specific purpose. By finding out what the learners have to know in order to function effectively in the target situation, the learners could be equipped with the necessary skills expected by the companies.

The literature on the writing of technical reports is included in this chapter, as the aim of this study is to identify the differences in the technical reports written by the Chinese and Malaysian engineers.

2.2 ENGLISH FOR SPECIFIC PURPOSES (ESP)

What is ESP? ESP as its name suggests is the teaching of English for a specific or limited purpose rather than for general mastery of the language itself. Strevens (1980) provides detailed characteristics of ESP. According to him, ESP is in contrast to 'General English' and designed to meet the specified needs of the learners. Learners are increasingly seeking proficiency in the English language in the specific domains of use to serve limited purpose, according to Bhatia (1986).

The idea of ESP, according to Peterson (1986), is born out of the need to produce practical results in a limited amount of time. As the teaching of English in ESP is designed to be specific rather than 'general', therefore the English taught in ESP is related to a particular theme and topic in relation to the relevant discipline, occupations or areas of study (Peterson, 1986).

The language used is also specified in the sense that the syntax, lexis, discourse, and semantics are centered on activities related to the relevant themes and topics.

Munby (1978) states that the growing demand for ESP programs is due to the need of the learners who seek proficiency of the English language so as to enable them to communicate effectively in their jobs or to pursue their studies. Furthermore, the scarcity of resources in most countries has led to the education being relevant to the countries' relevant development plan.

The rise of ESP, according to Hutchinson & Waters (1987), is due to the rise of the English language as an international language of commerce, science and technology, and this therefore gives rise to the demand for an instrumental knowledge of the language.

As Robinson (1980) states, the ESP course is "aimed at the successful performance of occupational roles". The development in the field of sociolinguistics with its emphasis on language variation and communication as well as the recent development in the educational psychology in which the needs and interest of the learners are taken into account have also led to the rise of the ESP (Hutchinson & Waters, 1987).

The ESP courses are, therefore, used as occupational requirements whereby learners study English because they need to use the language for occupational purposes. The ESP courses are also used in academic or professional study whereby the learners need to use the language for academic or other professional study

purposes. Mackey & Mountford (1978) also propose a third use of the ESP, which is the use of the ESP in the vocational training programs.

Learners taking a course in ESP therefore not only learn English but they learn "English en route to the acquisition of some quite different body of knowledge or set of skills" (Robinson, 1980). Robinson (1991) provides a detailed outline of characteristics of ESP:

1. ESP is directed to learners who study English because they need to use the language for study or occupational purposes. The ESP courses are therefore goal-oriented.

2. As the ESP courses are goal-oriented, therefore it aims to specify as closely as possible the specific needs of the learners. The ESP courses are therefore based on the needs analysis.

3. As ESP is the teaching of specified English within a limited time, therefore time-constraint is important. This means that objectives should be clearly defined and achieved within the time allocated.

4. The ESP courses are likely catered to the adults rather than children. As Peterson (1986) states, ESP courses appeal to "adults at a tertiary level who do not have the patience or motivation to attend English classes unless the

syllabus is based on the daily communication operations which they need in their careers".

5. The ESP courses are usually written for a group of students who are involved in the same kind of work or specialist studies. Therefore, each ESP course tends to be directed to an identical group of students.

2.3 NEEDS ANALYSIS

This section will discuss the techniques, types, and approaches to needs analysis. In relation to this study, the writing needs of the engineers concerned will be determined and this information in turn could be used to develop ESP courses, specifically, for engineers in China and Malaysia.

2.3.1 Introduction to Needs Analysis

Needs analysis is the very core of every modern survey of ESP (McDonough, 1984). Stufflebeam (1985) defines needs analysis as "the process of determining the things that are necessary or useful for the fulfillment of a defensible purpose".

According to Richterich (1983), needs analysis is actually the defining of "the situation in which the learners would need to use the language they were learning, and then defining the characteristics of the language used in those situations". However, it

is difficult to define the word 'needs' especially in the context of second language learning.

2.3.2 Types and Approaches to Needs Analysis

The term 'needs' do not have any objective reality and tend to have several interpretations. Allwright (1982), McDonough (1984), Hutchinson & Waters (1987), and Robinson (1991) propose different viewpoints on the types of 'needs'. As there are various interpretations of 'needs', the approach to needs analysis will depend on what type of needs analysis the researcher is interested in. Munby (1978), Gardner & Winslow (1983), James (1980), Nunan (1988), and Halliday (1984) propose the different approaches to needs analysis. Tarone & Yule (1989), on the other hand, propose that specialists or native speakers be the informants for the needs analysis. Tarone & Yule's proposal is especially useful to learners who are learning a specialist course for academic or professional study. This is because the specialist would be able to provide an insight to the course, which another informant might not be able to.

2.3.3 Needs Analysis Techniques

Needs analysis can be carried out in various ways. Berwick (1989) made a distinction between 'inductive' and 'deductive' methods. Inductive method involves the observations of case studies from which the courses can be generalized, while the deductive method involves the techniques such as questionnaires, surveys and other

data gathering instruments which can provide various forms of information as the basis of course design.

Needs analysis can also be carried out from major 'scientific' surveys to informal tools put together by an individual teacher for his class (Richterich, 1983). There are many types of tools, which a researcher can use when doing needs analysis. Johnson (1993) advocates the use of questionnaires and interviews to obtain the necessary information.

2.3.4 Localized Needs Research on ESP

Much research has been done on ESP by applied linguists abroad. However, Tickoo (1993) suggests that research should be done locally by local teachers and not to depend too much on research from abroad. This is because ESP is 'situated' teaching, and learning of an 'other' language (Tickoo, 1993).

Therefore, answers from research abroad may not be that relevant when applied to another country or situation. The clients, the classrooms, the educational resources, the aspirations and expectations, the strengths and limitations all play an important part in the teaching of ESP.

In Malaysia, some works have been done on ESP. Some of the dissertations on ESP in the workplace are: "The English Language Needs of Insurance Companies: A Focus on General Insurance" written by Julina Munchar (1999), "Writing Needs at the Workplace: An Ethnographic Analysis" written by Thilagavathi Shanmuganathan (1997), and "Writing Technical Reports in Engineering" written by Philomina Morris (1997).

However, making comparisons between technical reports written by engineers from two worksites, one in China and the other in Malaysia, is new. ESP in China is a completely new area for educators and researchers and nothing much has been done. Therefore, this research hopes to bring some light into ESP research in both China and Malaysia.

2.4 TECHNICAL REPORTS

This study will analyze technical reports of the Chinese and Malaysian engineers. As such, it is necessary to briefly describe what technical reports are and how it should be written. Technical reports describe the progress or results of scientific or technical research. They are usually produced in response to a specific request or research need, and serve as a report of accountability to the organization funding the research (Greig, 2004).

2.4.1 Writing of Technical Reports

Francis (2002) says that a technical should be written in correct, non-colloquial language with due attention to clarity, completeness and conciseness, grammar, diction, spelling, punctuation and style. He also says that writing is one of the higher forms of human endeavors.

Francis (2002) explains the importance of report writing as follows:

> "Probably no good engineer has ever been fired simply because he was a poor report writer. Far too often, however, good engineers have missed out on promotions and other rewards because their poorly written reports did not do justice to their achievements. Unless you can communicate effectively to others the information and knowledge you gained through experimentation, much of the value of your work will be lost. Your writing can be expected to serve as a source of reference to others. Your future employer will be entitled to a written record of what you have been paid to do. Writing is invaluable assistance in the organization of your thoughts for future efforts. The activity of reporting, therefore, is an important part of your work, laborious as the job often seems."

(Francis, 2002)

According to Francis (2002), the major sections of reports are: abstract, introduction, experiments, results, discussion, conclusion, acknowledgement, references and appendix.

2.4.2 Technical Terms

Paradis (2003) mentioned that technical terms are an essential part of all technical and scientific writing. He says that each field and specialty typically uses a vocabulary that relays a variety of specialized concepts by means of technical language.

Paradis (2003) explains about technical terms as follows:

> "Technical terms convey concentrated meanings that have been built up over significant periods of study of a field. The value of a specialized set of terms lies in the way each term condenses a mass of information into a single word. Technical terminology is often thought of as a shorthand, a way of gaining great depth and accuracy of meaning with economy of words. Technical terms often blend into formulae and mathematical manipulation. This quantification allows the concept to be manipulated mathematically. Technical terms can also lead to a great density of prose that is difficult to understand, even for the specialized reader."

(Paradis, 2003)

2.4.3 Scientific Terms

According to Sankey (1999), for much of the twentieth century, the philosophical imagination has been captivated by language. He says that from the topics of confirmation and explanation to those of laws of nature and the dynamics of theory change, linguistic aspects of science have loomed large.

Sankey (1999) explains scientific terms as follows:

> "Firstly, how does the vocabulary used by scientists acquire its meaning? Secondly, how is scientific terms related to reality? One might characterize these two questions, respectively, as the question of the meaning of scientific terms as opposed to the question of the reference of such terms. Debate about these two questions has in large part been conditioned by a distinction between two kinds of vocabulary employed in science. On the one hand, there is the observational vocabulary, which scientists employ to report upon observable phenomena and objects, which are directly perceived by means of their senses. On the other hand, scientists employ theoretical vocabulary when they speak about the unobservable entities which are postulated by scientific theories to explain observable phenomena."

(Sankey, 1999)

Throughout this research, scientific and technical terms will be investigated and listed together, based upon the common characteristics that both scientific and technical terms share. A common and important characteristic that both scientific and technical terms share is that these terms are used in observations, processes, and experiments. In other words, it would be quite appropriate to say that in the arena of observations, processes, and experiments, both scientific and technical terms are commonly used, together.

As mentioned in Chapter one, throughout this dissertation, these terms refer to the nouns used in the technical reports.

2.5 TYPES OF SENTENCES

Webb (2003) says that in English there are four basic sentence-types and the four sentences-types of English are simple, compound, complex, and compound-complex. He says that if we are familiar with the patterns of construction on which these four types are based, we can feel confident of expressing our ideas clearly to others. He also says that by varying the sentence-types that we use in our essays and reports, at university and in the workplace, we can maintain the interest of our readers.

2.5.1 Simple Sentences

Webb (2003) defines a simple sentence as follows:

> "A simple sentence is a single independent clause. An independent clause is a group of words that together express one complete thought. It includes a subject or subject group and a verb or verb group. The independent clause, with its subject-verb pattern, is said to be the basic building block of sentence structure. Practicing applying this structure initially to our writing can be a useful step towards clear and effective writing for academic and professional purposes."

(Webb, 2003)

According to Webb (2003), once we understand the fundamentals of simple sentences, we can then adapt our writing to form more elaborate structures. He describes the subject and verb in simple sentences and provides examples of them as follows:

The subject is the person or thing performing the action.

For example:

This report outlines alternative energy sources. (This report = subject)

The verb is the action word.

For example:

A barometer measures air pressure. (measures = verb)

Most verbs describe actions, such as *outlines*, *describes*, and *reduces*. Sometimes, however, the verb describes a state of being or having, rather than an action, such as *is*, *was*, *may be*, *have*, and *has*.

For example:

Water is one of the safest energy sources. (is = verb)

A subject may be a single word or a group of words:

For example:

1. Water is a safe energy source. (Water = subject of a single word)

2. Water, wind and solar power are all alternative energy sources to fossil fuels.

   (Water, wind and solar power = subject of a group of words)

A verb may be a single word or a group of words:

For example:

1. Some scientists oppose the use of nuclear power.

   (oppose = verb of a single word)

2. Many people have already turned to renewable energy sources.

   (have already turned = verb of a group of words)

A simple sentence may include two or more verbs or verb groups linked to one subject:

For example:

Scientists are monitoring global warming and reporting on its impact.

(are monitoring, reporting = two verb groups)

If a word group comprises the subject, it is called a compound subject.

For example:

Some scientists and environmentalists oppose the use of nuclear power.

(Some scientists and environmentalists = compound subject)

2.5.2 Compound Sentences

Webb (2003) explains that a compound sentence consists of <u>two or more simple sentences</u>, which may be linked in three different ways (with a <u>semicolon</u>, a <u>co-ordinating conjunction</u> or an <u>independent marker</u>). He describes how to make compound sentences and provides examples of them as follows:

Simple sentences which express closely related ideas may be joined by a <u>semicolon (;)</u> to form a compound sentence.

For example:

Fossil fuels are non-renewable; we need to find alternative energy sources.
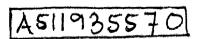
Simple sentences which are related may be joined by a <u>comma (,)</u> and a <u>co-ordinating conjunction</u> such as 'so'.

For example:

Fossil fuels are non-renewable, so we need to find alternative energy sources.

A <u>co-ordinating conjunction</u> shows the relationship between the two original simple sentences, which when joined are more accurately described as two independent clauses. There are seven <u>co-ordinating conjunctions</u> in English:

for   and   nor   but   or   yet   so

For example:

Many scientists have hailed nuclear power as a cheap source of electricity, **but** environmentalists have stressed its danger.

Simple sentences which are related may also be joined by a <u>semicolon (;)</u> and an <u>I ndependent marker</u> such as '*however*', '*moreover*', '*therefore*' and so on.

For example:

1. Fossil fuels are non-renewable; *therefore*, we need to find alternative energy sources.

2. It is not always possible to locate homes beyond traffic noise; *therefore*, noise barriers should be constructed.

3. Like other forms of alternative energy, the wind is free; *however*, special equipment is needed to extract the energy from the wind.

2.5.3 Complex Sentences

According to Webb (2003), a complex sentence is created when <u>one independent clause</u> has <u>one or more dependent clauses</u> added to it. He explains how to make complex sentences and provides examples of them as follows:

An independent clause expresses a complete thought and could stand alone as a sentence.

For example:

West-facing windows will be hot unless they are intensively shaded.

(West-facing windows will be hot = independent clause)

A dependent clause does not make complete sense on its own. It is a sentence fragment.

For example:

If in-floor heating is installed, it is wise to insulate the floor.

(If in-floor heating is installed = dependent clause)

Words such as *although, because, since* are called dependent markers. They turn independent clauses (or complete sentences) into dependent clauses. Some other dependent markers are *if, after, before, when, so that, until* and *unless*.

2.5.4 Compound-Complex Sentences

Webb (2003) explains that a compound-complex sentence combines two or more independent clauses and one or more dependent clauses.

Webb (2003) provides the following examples of compound-complex sentences:

1. Windows directly control the flow of air through the home; therefore, their location and design need careful consideration when the initial plans are drawn up.

2. There is no limit to the number of funding applications that a municipality can make, but they do not always receive the entire amount that they request.

3. Soil degradation is a major and increasing problem; for example, during the last fifty years, world-wide an area of land about half the size of Australia has been so degraded by human activity that is incapable of sustaining any plant life.

4. Fossil fuels are non-renewable; therefore, we need to find alternative sources which will not be depleted.

5. Australians have become increasingly car-dependent, and roads are noisy and congested because public transport infrastructure has been neglected.

2.6 NOUN

This study will identify all the nouns and subsequently make the distinction of which are scientific and technical nouns. Therefore, it is necessary to define and describe nouns. According to Klammer (2000), a noun is a word used to name a person, animal, place, thing, and abstract idea. He says that a noun can function in a sentence as a subject, a direct object, an indirect object, a subject complement, an object complement, an appositive, an adjective or an adverb. Macfadyen (1996) says that nouns are usually the first words which small children learn.

2.6.1 Definition of Nouns

Klammer (2000) defines nouns as follows:

> "Whatever exists, we assume, can be named, and that name is a noun. A proper noun, which names a specific person, place, or thing, is almost always capitalized. A proper noun used as an addressed person's name is called a noun of address. Common nouns name everything else, things that usually are not capitalized."

> (Klammer, 2000)

According to Klammer (2000), a group of related words can act as a single noun-like entity within a sentence. He describes a noun clause and phrase as follows:

A noun clause contains a subject and verb and can do anything that a noun can do.

For example:

What he does for this town is a blessing. (What he does for this town = noun clause)

A noun phrase, frequently a noun accompanied by modifiers, is a group of related words acting as a noun.

For example:

the oil depletion allowance; the abnormal, hideously enlarged nose.

2.6.2 Categories of Nouns

Klammer (2000) explains that nouns can be classified further as <u>count nouns,</u> which name anything that can be counted (four books, two continents, a few dishes, a dozen buildings); <u>mass nouns</u> (or non-count nouns), which name something that can not be counted (water, air, energy, blood); and <u>collective nouns,</u> which can take a singular form but are composed of more than one individual person or items (jury, team, class, committee, herd).

Klammer (2000) describes categories of nouns and provides examples of them as follows:

Some words can be either a <u>count noun</u> or a <u>non-count noun</u> depending on how they are being used in a sentence.

For example:

1. He got into **trouble.** (non-count)

2. He had many **troubles.** (countable)

3. **Experience** is the best teacher. (non-count)

4. We had many exciting **experiences** in college. (countable)

Some texts include the category of <u>abstract nouns</u> that are not tangible, such as *warmth, justice, grief,* and *peace.* <u>Abstract nouns</u> are sometimes troublesome for non-native writers because they can appear with determiners or without.

For example:

1. **Peace** settled over the countryside.

2. **The skirmish** disrupted the peace that had settled over the countryside.

2.6.3 Forms of Nouns

According to Klammer (2000), nouns can be in the subjective, possessive, and objective case. He says that the word *case* defines the role of the noun in the sentence and provides the following examples.

1. **The English professor** is tall. (subject)

2. He chose **the English professor.** (object)

3. **The English professor's** car is green. (possessive)

2.7 CONCLUSION

Therefore, the literature review has shown that many factors are involved in order to identify the various needs of English learners. ESP is directed to learners who study English because they need to use the language for study or occupational purposes. By finding out what the learners have to know in order to function effectively in the target situation, the learners could be equipped with the necessary skills expected by the future workplaces.