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AN INVESTIGATION INTO THE EFFECTS OF DISCIPLINE-SPECIFIC BACKGROUND KNOWLEDGE, PROFICIENCY AND GENRE ON READING COMPREHENSION AND STRATEGIES OF MALAYSIAN ESP STUDENTS

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Abstract

This study investigates the reading comprehension and strategies of Malaysian students within the context of ESP. It seeks to examine the interplay between discipline-specific background knowledge, proficiency and genre with reading comprehension and strategy use by ESP students.

The subjects involved 50 second year students studying in Mechanical Engineering and Management discipline areas in the Universiti Teknologi Malaysia. These subjects were from two English proficiency groups, namely High and Intermediate level. All the subjects were required to read a total of four texts; two from two discipline areas, Mechanical Engineering and Management, and two from two genres, textbook and encyclopaedia.

The study employed two main instruments, namely: think aloud protocols and verbal recall protocols. A questionnaire was also used to elicit information concerning background information of the subjects and their perceptions of the texts. Students were required to read all four texts and to produce concurrent think-aloud protocols which were later coded according to the categorisation scheme of twenty-four strategy types. The recalls produced of the reading texts were analysed in terms of idea units using a scheme to account for the preservation and transformation of meaning from source to recall text. Quantitative analyses using Univariate Analysis of Variance and Pearson Correlation were conducted. Furthermore, closer examination of data from four individuals (from both discipline and proficiency groups) was also conducted.

Results from the recall data suggest a significant difference between the subjects from the two discipline groups in the production of Meaning Preserving idea units, but not Meaning Transforming idea units. A similar difference is recorded in the production of these idea units between the High and Intermediate subjects, with the High level subjects producing more of both categories of idea units. In terms of genre, no significant difference was observed in recall of the texts from textbook and encyclopaedia

Analysis of the think-aloud protocols from the two discipline subjects shows no significant difference in the number of strategies and strategy types. However, a significant difference is recorded between the proficiency levels in both the frequency of strategies and the range of strategy used, with the High level subjects tending to use more strategies and strategy types than the Intermediate level subjects. In terms of genre, no significant difference is observed for both number of strategies and strategy types.

Further analyses of the likely association between recall and strategy use revealed a significant relationship between the preservation of meaning in the recall and the occurrence of frequent strategies. However, there were no significant relationships between Meaning Preserving idea units and strategy types, Meaning Transforming idea units and strategies, and Meaning Transforming idea units and strategy types.

The cases of four individual subjects (Ying, Chee, Lily and Nor) were also considered in terms of the basis of strategy use (text-based or background knowledge-based), scope and grammatical nature of the source text on which the strategies were drawn (word/phrase or clause/sentence level), the number and range of strategies (limited-strategy or multi-strategy sequences) and the relationship between the strategies and the idea units. Overall, results show that the subjects used more text-based than background knowledge-based strategies. The High level subjects, Ying

and Lily, however, tended to use more of both text-based and background knowledge-based strategies than the Intermediate subjects, Chee and Nor. Furthermore, all the subjects used more strategies prompted by clause/sentence level than word/phrase level unit of the texts. In terms of strategy sequences, the High level subjects used more multi-strategy sequences and the Intermediate subjects used more limited-strategy sequences. Mixed results are observed in the relationship between the verbal recalls and strategies of all the subjects.

In sum, subjects appeared to comprehend within-discipline texts better than outside-discipline texts. No difference is observed between subjects from the two discipline groups in their strategies use. Furthermore, the High level subjects tended to produce more idea units in their recalls and to employ more strategies than the Intermediate subjects. No difference is observed in the subjects' performance when reading texts from the two genres. Explanations for these results in the light of the literature are discussed.

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Special dedication:

This thesis is dedicated to my husband, Amir, whose inspirations motivate me to complete this course of study.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Attempts at describing reading have resulted in a range of definitions. Urquhart and Weir (1998), for instance, discuss two aspects of reading. First, reading may be seen as the accurate decoding of written symbols. The importance of accurate decoding of language is also noted by Eskey (1988). Readers, for the most part, are able to decode the symbols not by guessing from context or world knowledge, but by automatic recognition of the symbols. A reader who only reads in English, for instance, may find a Chinese text to be meaningless unless he or she learns how to decode the writing system. This suggests that decoding plays an important part in reading. Second, reading refers to a more complex phenomenon as it involves cognitive activities not only in terms of recognition of symbols and words, but also the application by the reader of syntactic, semantic and world knowledge. Reading is a cognitive process employed as a means to an end, comprehension. Urquhart and Weir (1998: 22) define reading as 'the process of receiving and interpreting information encoded in language form via the medium of print'. Williams (1984: 2) defines reading as 'a process whereby one looks at and understands what has been written'. The goal or product of reading is, therefore, understanding of the printed text.

In an attempt to explore what reading is, Alderson (1984) discusses two necessary elements involved in reading: a reader and a text. First, the reader possesses a range of reading abilities, such as literal and inferential comprehension, evaluation and appreciation, which help him or her to understand a text at various levels. In addition, understanding of text will also vary according to the reader's purpose and motivation. This means that different readers will arrive at different understanding of text because they start with different skills, purposes and motivations. Second, research has focused on features of text such as readability, simplification, syntactic and lexical features. These features of text are important in determining the accessibility level of the text. Davies (1984), for instance, discusses the notion of simplification of texts for pedagogic purposes. Here, simplification means a process in which a teacher consciously changes the language presented in the text. In other

words, simplification is used to make information available to a reader other than the one originally intended.

Understanding of a text may occur at several levels. At least three levels are noted by Alderson (2000:7): 'a literal understanding of text, an understanding of meanings that are not directly stated in text, or an understanding of the main implications of text'. While the first level refers to surface level extraction of information from a text, i.e. reading literally, the second and third refer to a deeper level of understanding, such as making inferences of the meaning or critically evaluating the text. These different levels of understanding indicate the complexity of the cognitive processes involved in reading.

Research on reading has focused on either process or product. The process of reading refers to the interaction of the reader with the text. The reader will relate the meaning of the written text to his or her background knowledge. The reader will also decide whether or not the text provides the information he expects. The reader is said to employ strategies in order to understand the text, to evaluate the arguments about the content or to relate the extracted information to other texts he has read before.

Although researchers acknowledge that many things are going on in a person's mind when he is reading, investigating the dynamic process of reading is not an easy or simple matter as reading is most of the time an internal, silent and private process (Alderson, 2000). The investigation of the reading process can therefore only be conducted indirectly through such techniques as miscue analysis, introspection, think-aloud while reading a text and so on. Although each of these techniques has attracted criticisms, each offer valuable contributions to the investigation of the process of reading.

A reader employs a range of different strategies to process a text effectively (Carrell, 1987). Strategies play an important role for a reader in interacting with the text and in searching for important clues in order to construct the meaning of a text. Process-oriented research examines how a reader employs his internal and external resources, such as his background knowledge, language ability and familiarity with a genre or text structure in order to understand a text. Research on reading processes in first language (such as Olshavsky, 1977 and Garner, Wagoner and Smith, 1983) and subsequent language (Sarig, 1987) seems to point to potential differences in the reading behaviour of good and poor readers. In the domain of background knowledge effect on reading strategies, studies by Kobeil (1999) and Pritchard (1990) suggest

that people from different discipline and cultural groups may display different processing behaviour. In other words readers' strategies and reading problems may not always be the same in different contexts. It can be argued that more research on the reading strategies of readers from different discipline backgrounds or proficiency levels is called for.

In contrast to the reading process, the product of reading has long been the focus of research attention. If the process of reading refers to how a reader derives the meaning of the text via different strategies, the product of reading refers to what understanding of the content is reached. The main goal of product-oriented reading research relates to the levels of comprehension achieved by a reader. A common research method for investigating a reader's understanding of a text is by testing. Such tests, using multiple-choice, cloze and open-ended questions, have been criticised for their limited ability to really measure a reader's comprehension of a text (Urquhart and Weir, 1998). Other methods such as summary writing (Johns, 1985 and Johns and Mayes, 1990) or using recall protocols (Bernhardt, 1991a) are also commonly employed. Although protocol methods also have weaknesses (see Chapter Two), they may offer compelling evidence of readers' thoughts and reflections which may not be revealed by testing methods (Pressley and Afflerbach, 1995).

Studies of L1 and L2 reading comprehension have been widely conducted within the theoretical framework of psycholinguistics. One of the areas of interest concerns the notion of schema theory applied to reading comprehension (see Chapter Two). Schema theorists claim that the world knowledge acquired by a person is stored and represented in an organised and hierarchical manner. This world knowledge, also known as background knowledge, is then used by the person to understand a text. The fact that readers from different cultural backgrounds interpret the same text differently has provoked much empirical research into the effects of background knowledge on reading comprehension. A study by Steffensen and Joag-Dev (1984), for instance, points to the effect of cultural background knowledge on the comprehension of culture-related texts.

In the context of ESP, research focusing on the effect of discipline-specific knowledge on reading comprehension has been conducted with students from a variety of discipline areas (Clapham, 1996; Alderson and Urquhart, 1985; Widad, 1991; Oliviera, 1988, Hudson, 1991, among others). Unlike studies of reading comprehension in cross-cultural contexts, studies of the comprehension of discipline-

related texts have produced mixed results pertaining to the effect of background knowledge. Clapham's (1996) and Alderson and Urquhart's (1985) studies, for instance, show inconclusive results concerning the effect of background knowledge on reading comprehension, while Oliviera's (1988) study points to a positive effect.

Among the variables contributing to reading comprehension, the influence of L2 proficiency on reading comprehension has been commonly included as one of the variables in many L2 reading studies (Cummins, 1991; Rigg, 1988; Clarke, 1988; Perkins et al., 1989 and Koh, 1985). The issue of the influence of proficiency on L2 reading comprehension has been widely discussed in relation to the linguistic threshold hypothesis and linguistic interdependence hypothesis. These two hypotheses have been proposed to investigate whether reading is a language or a reading problem (Alderson, 1984).

In investigating the contributing variables to L2 reading, Allen et al. (1988) and Bernhardt and Berkemeyer (1988) found that students' awareness of genre may also influence their level of reading comprehension. Other than these studies, very few studies have been found to investigate the effect of familiarity with genre on reading comprehension.

In summary, there is a need to examine the factors that contribute to L2 reading strategies and comprehension in the context of ESP. Our interest is to investigate both the process and product of reading by Malaysian students. The present study, thus, sets itself the goal of investigating the effect of discipline-specific background knowledge, proficiency and genre on the reading comprehension and strategies of Malaysian students. The motivation for this study derives from two concerns. One is the mixed and inconclusive results found in many L2 reading studies. The other is the experience of teaching and developing ESP programmes (see section 1.2), which requires the search for a better understanding of the reading processes displayed by Malaysian students. The aims of this study are, thus, presented in the section that follows.

1.1 Aims of the present study

The aims of this study are summarised as follows:

- to investigate the effects of background knowledge, text sources (genre) and proficiency levels on the reading comprehension and strategies of Malaysian ESP students when reading discipline-related texts.

- to investigate the relationship between the subjects' reading strategies and reading comprehension of the texts.

The present study, as noted earlier, focuses on the effect of three factors, namely background knowledge, genres and proficiency on the reading comprehension and strategies of Malaysian readers. In particular, to investigate background knowledge, we isolate two discipline domains: Mechanical Engineering and Management. In addition, the effect of two types of academic genres (encyclopaedia entry and textbook articles) and L2 proficiency (High and Intermediate) on reading comprehension and strategies are included.

1.2 The context of the study

The present study was conducted with Malaysian students studying in the Universiti Teknologi Malaysia (UTM, Johor Bahru, Malaysia). Although courses in this university are taught in the national language, Malay, the students generally have to read textbooks and reference books in English. This is a common situation in almost every university in Malaysia. In general, Malaysians regard English as a second language, although it must be noted that the standard of English in schools has fallen considerably during the last two decades making it almost a foreign language (Hassan, 1999). This situation also applies in UTM. However, the current study will refer to English as a second language as it is considered to be 'the most important language after Bahasa Melayu (the Malay language) which is the official language of the country and the first language of most of the population of the country' (Hassan, 1999: 4).

In the past, due to colonisation by the British, the general education system in Malaysia followed the British education system. Although at least four types of schools were established, operating in parallel through the medium of English, Malay, Chinese and Tamil, English-medium education, which was considered prestigious and

important for career advancement, was well received by the population, as noted by Lah (1996: 29):

> The national schools in Malay-medium and the national type schools in the Chinese-medium, Tamil-medium and English-medium were introduced where BM (Bahasa Melayu or Malay language) was made a compulsory subject alongside English. As a result, there was a sharp increase in both the number of English-medium and Malay-medium secondary schools and the Malays from the rural areas had access to bilingual education. The percentage of total enrolment from all the ethnic groups in English-medium schools rose from 61 per cent in 1956 to 84.4 per cent in 1964.

In the 1970's and 1980's, there was a gradual shift in the language of instruction from fully English-based to Malay-based (Asmah, 1987 and Lah, 1996). As a result, the Malaysian education system experienced major changes in all aspects, from syllabus design to the translation of books from English to Malay. With the role of English reduced to a subject area taught in class, a considerable drop in the standard of English language in schools was observed. Pillay (1998:3) notes that:

> Now that the education system has shifted to using Bahasa Malaysia (Malay Language), and English has been relegated to the status of a subject in the school curriculum, one must expect the level of competence to drop. Fairly or unfairly, teachers of English are being castigated for this "drop" in levels of competence, a fact that politicians and some educational leaders seem reluctant to accept.

As a result, students from all levels of education face the problems of comprehending texts in English for academic or leisure purposes. At the same time, the process of implementing the change to Malay as the main language of instruction was slow. This was mainly due to the fact that the majority of textbooks, reference books, journals and magazines used were still in English. (Asmah, 1983).

At the tertiary level of education, the Ministry of Education now requires Malay to be used as the language of instruction in all disciplines (Seventh Malaysia Plan, 1996). Despite this directive from the government, English continues to be used as the medium of instruction. Universities such as the International Islamic University, University Malaya and University Malaysia Sarawak continue to conduct lectures in English because many of the teaching members are specialists from overseas.

The situation in the Universiti Teknologi Malaysia (UTM), where the data collection for our study takes place, is somewhat different. Malay has been the main

instructional language since the 1970's. However, recently UTM received a mandate to offer courses not only at certificate and diploma levels but also at Bachelors and Masters degree levels. With this sudden change in status, UTM now has to compete with other well-established universities in Malaysia with all faculties encouraged to use English, in addition to Malay, in their course of instruction. Although Malay remains the language of instruction in UTM, English is acknowledged as an important language. This is evident from the fact that the Department of Modern Languages (DML) has been given the challenging role of raising the standards of English among UTM students.

In the 1980s, the education system began to feel the impact of the declining English language standards nationwide. This impact was also felt by UTM, and resulted in the DML being given a bigger responsibility in providing the teaching of English in the context of ESP. The department began receiving requests from various faculties in UTM to provide students with skills relevant to their disciplines. Thus, the approaches to teaching English language in UTM underwent several drastic changes in syllabus design, moving from General English to English for Specific Purposes using authentic materials from science and technology domains.

Currently, three ESP courses are offered in UTM, namely, English for Management and Business Studies (EMBS), English for Civil Engineering (ECE) and English for Mechanical Engineering (EME). These courses, developed through the collaboration of staff members of DML and the related faculties (Faculty of Management and Human Resource Development, Faculty of Civil Engineering and Faculty of Mechanical Engineering), were specifically designed for Management, Civil Engineering and Mechanical Engineering students respectively. While the EMBS programme uses teaching materials related to business correspondence, report writing and oral presentation, ECE and EME focus on topics related to the students' discipline studies.

The ECE programme contains two types of language training activities, core and support activities (Abdullah et al., 1995). While the core activities are 'built around the learners mainstream academic activities in the Faculty of Civil Engineering, e.g., note taking for faculty assignment' (Abdullah et al., 1995: 20), the support activities contain exercises such as reading texts from their academic textbooks, vocabulary work and guided tasks on note-taking and referencing skills. The topics in the reading materials are selected from Civil Engineering textbooks, and

include 'concrete', 'aggregate' and 'building structures' and so on. The students are familiar with these topics which had been covered in their core subjects. These reading materials are taken from the students' academic textbooks for the following reasons:

1. the students are assumed to be familiar with materials from textbooks rather than from other sources of texts.

2. the materials from textbooks are the same materials used in the students' core activities and, therefore, familiarity with the topic helps to enhance the students' understanding of the materials.

3. the teaching of content matter and language is conducted through team-teaching by subject specialists and English language lecturers. Therefore, advice from subject specialists of the area is always sought for.

Abdullah et al. (1995) notes a number of problems encountered in implementing this programme, however. Firstly, close collaboration and team-teaching have not always been feasible especially in a situation where English is not used as the language of instruction in the core activities by subject specialists. Secondly, the role of the English language lecturers and subject specialists becomes quite unclear in particular with respect to the focus on language aspects and content aspects of the field. Thirdly, the students need more guidance and more simple texts at the initial stage of the academic session before they are given the texts from their academic textbooks. Fourthly, since this programme does not employ texts from other sources, such as encyclopaedia, it is quite difficult to ascertain the effectiveness of using academic textbooks as the source of texts compared to other sources of texts.

In the light of these issues in the design and implementation of the ECE course, the current research focuses on aspects of the English for Mechanical Engineering (EME) programme. The EME programme, which this present researcher was particularly involved in, was developed to suit the students from Mechanical Engineering area. Unlike the ECE programme, the EME programme uses texts not only drawn from textbooks but also from encyclopaedias. This programme consists of three stages from the students' first to third year. An integrated-skilled approach is adopted in the first year involving the skills of reading, listening, speaking and writing. At this stage, the students are introduced to reading texts drawn from general sources, such as encyclopaedia. The purpose of employing texts from general sources is to provide a lead-in before the students are introduced to more challenging texts

from their academic textbooks or specialised journals. In the second year, the focus is on reading texts from academic textbooks and making oral presentations. In the third year, subjects are introduced to extensive reading of Mechanical Engineering texts and are required to do report writing related to Mechanical Engineering topics.

On the basis of these two ESP programmes, we focus on the selection of texts from textbooks or encyclopaedias. One issue that this study is attempting to address is the question of selecting ESP materials, in particular

- whether it is good to develop materials based on the student's discipline area. This is in line with the assumption that since the students are familiar with the topic area, their familiarity will facilitate their learning and understanding of the reading text.

- whether it is good to use texts from a specialised source or from a general source. Should the reading text be taken from a specialised source such as academic textbooks or should a less specialised text be used, such as an encyclopaedia?

The issue of genre, in particular the effect of textbooks and encyclopaedia on reading comprehension and strategies, has not been fully investigated. Our investigation, therefore, includes genre as one of the variables. Furthermore, our study is also interested in investigating the effect of background knowledge and proficiency on the reading comprehension and strategies of Malaysian ESP students. Specifically, our subjects are Mechanical Engineering and Management students from High and Intermediate proficiency levels.

In the following sections, we present the definitions of some terms used in our study.

1.3 Definitions of terms

Below we define a number of key concepts used in our research. These are as follows: *English for Specific Purposes* (Section 1.3.1), *background knowledge* (Section 1.3.2), *genre* (Section 1.3.3), *language proficiency* (Section 1.3.4), *reading comprehension* (Section 1.3.5) and *reading strategies* (Section 1.3.6).

1.3.1 English for Specific Purposes

One of the problems with the term *English for Specific Purposes* (ESP) is that it is not a clear-cut concept. It seems to have many facets and definitions. Robinson (1991:1) states that ESP may be perceived as 'pluralistic' by which she means that there have been many definitions given but no single definition can describe it comprehensively. She claims that the specificity of the purpose of, say, a certain English language programme makes the programme appropriate for perhaps only that language learning environment and not for another. Therefore, it is difficult to define ESP because whatever definitions are given would not be able to encompass its whole meaning.

Dudley-Evans and St. John (1998) make the criticism that the definitions given by Hutchinson and Waters (1987), Strevens (1988) and Robinson (1991) are broad and complicated. As an alternative, they define ESP by using 'absolute and variable characteristics' (p. 4). They provide a substantial and comprehensive working definition of ESP which again could be criticised as being pluralistic and arbitrary. But, for the purpose of this research, four aspects of the definition provided by Dudley-Evans and St. John (1998: 4-5) are focused on, namely

I.   Absolute characteristics:
- ESP is designed to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the disciplines it serves. ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities.

II   Variable characteristics:
- ESP may be related to or designed for specific disciplines;
- ESP is generally designed for intermediate or advanced students.

Another important aspect of ESP that needs mentioning here is its classifications. Dudley-Evans and St. John (1998) and Robinson (1991) classify ESP into English for Occupational purposes (EOP) and English for Academic Purposes (EAP) in the form of a hierarchical tree structure. However, Robinson's classification as shown below (Figure 1.1) is clearer and more comprehensive.

Figure 1.1- ESP classification (Robinson, 1991: 3)
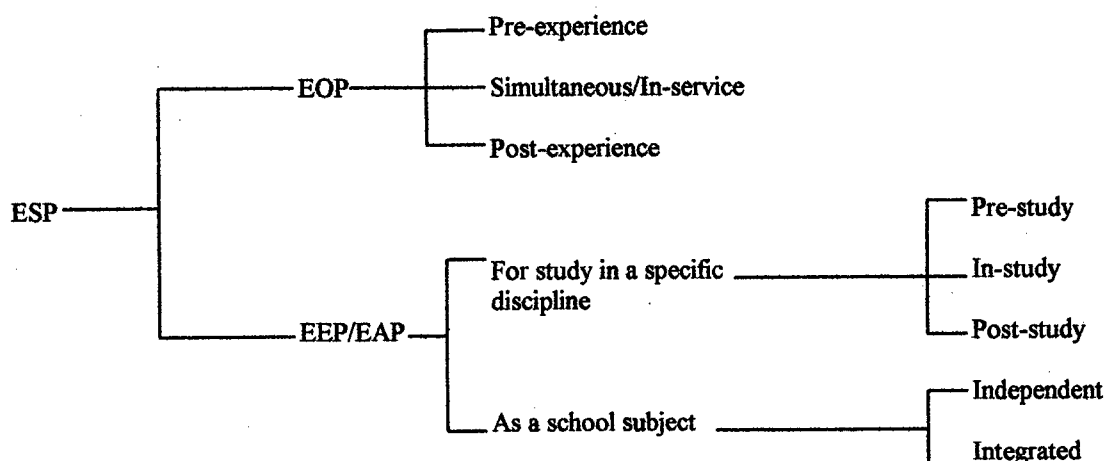
In this diagram, Robinson differentiates English for Occupational Purposes (EOP) from English for Academic Purposes (EAP). EOP is closely related to the needs and training of certain occupational areas, for instance English for Technicians, while EAP is closely related to academic needs and training, for instance English for Science and Technology. In the present research, this researcher focuses on one aspect of the ESP context, that is, English for Academic Purposes (EAP).

1.3.2 Background knowledge

The concept of *background knowledge* is known to be difficult to define because of its breadth. Psychologists and linguists often use the term differently to refer to such concepts as general knowledge, world knowledge, prior knowledge or, more commonly, *background knowledge*. Sometimes these terms are used interchangeably. Researchers also tend to refer to *background knowledge* as knowledge structures stored in the memory known as schemata (see Chapter 2, section 2.3.1). Carrell (1987) and Swales (1990) employ the term *schema* to describe background knowledge. They differentiate knowledge in terms of content schema and formal schema. The former refers to knowledge of physical and abstract things, although for Carrell this refers to content knowledge related to cultural knowledge, and for Swales this refers to knowledge about facts and concepts. Swales' notion of content knowledge seems to go beyond cultural knowledge encompassing other types of specialised knowledge. Formal schema, on the other hand, refers to knowledge

about the forms or rhetorical structures of a text (Carrell, 1987) or procedures and routines of a discourse, such as, how to order food in a restaurant (Swales, 1990).

Alternatively, Samuels and Eisenberg (1981) differentiate two types of knowledge, namely propositional and procedural knowledge. Propositional knowledge is 'knowledge of the things in our world and in our mind.' (p.43). In general, this refers to knowledge of physical things and abstract concepts stored in a person's mind. In reading, according to Samuels and Eisenberg (1981), this knowledge ranges from the recognition and perception of letters to the formation of semantic information from the specific words or concepts which exist in a reader's mind. These researchers noted that although the words or concepts may be interrelated to each other in a form of schemata, the context of an event will determine the selection or use of a specific word or concept. This type of knowledge is similar to declarative knowledge (O'Malley and Chamot, 1990) which not only takes the form of abstract propositions but also temporal strings of events and images.

Procedural knowledge is knowledge of how to elicit implicit information from a text, for instance, how to make inferences or to syntactically parse a sentence. According to Samuels and Eisenberg (1981: 47),

> Procedural knowledge is used to gain access to information not given directly from the text. This is essential at all levels of processing information. The printed representation of an unfamiliar word does not give explicit instructions as to how it should be decoded. Nor does an allegorical story give a detailed account of its symbolism. In both cases, we must go beyond the text information, and we need a way to select which indirect information should be retrieved.

They go on to explain that (p.49),

> The basis of these processes are procedures that can assess the current context or state of the system, and be able to activate other, possibly distantly related, parts of the knowledge base that would be relevant to the current situation.

Against this essentially descriptive distinction between types of knowledge, Samuels and Eisenberg (1981) raise doubts as to whether these types of knowledge are indeed separable. For instance, for fluent readers the decoding procedures and the activation of knowledge of a concept may occur simultaneously since the process is already automatic, and this may therefore make empirical examination of the knowledge bases difficult.

Bernhardt (1991a) provides a clearer distinction of different types of *background knowledge*. According to Bernhardt there are three types of knowledge:

- **Local-level knowledge**, such as, where certain household items (e.g. the chequebooks) are kept.

- **Cultural knowledge** such as rituals, wedding, funeral etc.

- **Domain-specific knowledge**, such as engineering, medicine, soccer etc.

Since *background knowledge* is a very broad concept (Clapham, 1996), we only focus on **domain-specific knowledge** as defined by Bernhardt (1991a). This domain-specific knowledge can be attained by anyone through various ways such as by means of formal education, professional experience or possibly through practising a hobby. The use of the term *background knowledge* in this study refers, then, to this notion of domain or discipline-specific knowledge. In relation to the notion of schemata discussed earlier, this term refers to the content knowledge of the Mechanical Engineering and Management domains.

1.3.3. Genre

The main interest in investigating the effect of *genre* arises from experience and problems in writing and preparing ESP teaching modules. ESP material writers are often unsure as to which sources of text would be suitable for ESP teaching materials. Some claim that academic textbooks are a useful source of material, since students have most contact with them through their academic studies, and are more motivated when they read materials from a familiar source. On the other hand, there are also some material writers who believe that ESP materials should be taken from more general sources such as encyclopaedias. This is because the purpose of language classes is to focus more on the target language rather than the content area. As noted earlier, the interest in examining whether there is a different effect in reading texts drawn from textbooks and encyclopaedia stems from our experience in teaching and preparing modules for the English for Mechanical Engineering programme.

Among the many researchers working within *genre* (Dudley-Evans, 1994, and Bhatia, 1993), Swales' (1990:59) definition of *genre* is often cited as a useful framework.

> A genre comprises **a class of communicative events, the members of which share some set of communicative purposes**. These purposes are

recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. **This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and styles. Communicative purpose** is both a privileged criterion and one that operates to keep the scope of a genre as here conceived narrowly focused on comparable rhetorical action. In addition to purpose, exemplars of a genre exhibit various patterns of similarity in terms of structure, style, content and intended audience. If all high probability expectations are realized, the exemplar will be viewed as **prototypical by the parent discourse community. The genre names** inherited and produced by discourse communities and imported by others constitute valuable ethnographic communication, but typically need further validation. (Boldface- Z. Zainal)

This working definition is developed on the basis of the characterisations described by Swales (1990: 45-57). We will adopt it in order to differentiate the two sources of texts employed in this study. As each defining characteristic of *genre* is described, it will be applied to textbooks and encyclopaedias in an attempt to distinguish them as two separate genres.

1.   A *genre* **is a class of communicative event:** In this respect, the language of the discourse, the participants, the role of that discourse and the cultural and historical environment of its production and reception play the main role in the classification of a *genre*. Therefore, common activities like doing household chores and driving, or a rare activity like 'a TV advert using a talking dog' (Swales, 1990: 46) are not considered as communicative events and therefore 'fail to constitute a class or genre' (Burgess, 1997: 76).

In our study, textbooks and encyclopaedias are considered different with respect to language, participants, the role of the discourse and the main context for production and reception. Firstly, although both textbooks and encyclopaedias are similar in using the written mode as their main mode of communication, there are differences in the degree of details included. The language used in textbooks is comparatively more elaborate since its production is not limited by space. By elaborate, it means the language includes descriptions of detailed information such as examples and illustrations for the purpose of providing clarity in the information provided. Encyclopaedias, on the other hand, use condensed or summary forms because writers are usually given limited space to describe a subject matter. Secondly, the participants or consumers of textbooks are typically limited to students, teachers, lecturers and subject specialists whereas the consumers of encyclopaedias tend to be

diverse, comprising potentially the whole general public. In this respect, it can be said that textbooks have a well-defined readership compared to encyclopaedias. Thirdly, the discourse role or function of textbooks is to present and instruct readers on the content of specific subject areas, which may be selected or sequenced according to complexity, while the discourse role of encyclopaedias is to inform readers on content from a variety of subject areas. Since the arrangement of contents in encyclopaedias is usually in alphabetical order, gradation according to complexity is not applied. Fourthly, there is a tradition of use of textbooks in the classroom, whereas the main context of use of encyclopaedias is in public (educational institutions) or private libraries.

2.   **The principal criterial feature that turns a collection of communicative events into a *genre* is some shared set of communicative purposes:** In this respect, Swales notes his agreement with both Miller (1984) and Martin (1985), that shared purpose rather than shared form is the main criterion for establishing genre. Although communicative purpose is very powerful in shaping our lives, Swales posits that purpose is less demonstrable than form. He notes that 'the fact that purposes of some genres may be hard to get at is itself of considerable heuristic value' (p.46). This means identifying the purpose of a text requires close examination of the text which is unprejudiced by the stylistic features and norms of the text.

In the context of our study, the communicative purposes of textbooks and encyclopaedias can be differentiated. The purpose of textbooks is, above all, pedagogic. This is the main thrust of producing any textbooks. The writers will always have a set of students in mind as their target audience. In addition, it is noted that textbook production has a commercial purpose (Swales, 1995). On the other hand, the purpose of an encyclopaedia is, above all, informative since it provides facts and information on various topics. Although the production of encyclopaedias may be commercially driven, the market is generally aimed at institutions and organisations rather than at individual readers. Unlike textbooks, whose audience generally belongs to a specific discourse community, the audience of encyclopaedias may consist of a wide, non-specialist public. It is noted that texts from encyclopaedias are sometimes used for teaching purposes but the texts are not written with this purpose in mind.

3.   **Exemplars or instances of** *genres* **vary in their prototypicality**: In addition to communicative purpose, prototypicality is a feature which is used to identify membership of a genre. Swales (1990) provides two ways of identifying the varying prototypes of *genre*, namely the definitional approach and the family resemblance approach. The definitional approach helps to identify a member of one class to another, such that an apple is a member of the set of types of fruit and a woodpecker is a member of the set of types of bird. The family resemblance approach looks into the inter-relationships of the event, such that, soccer and chess are members of 'the set of games', although they do not share the same rules. In conclusion, Swales (1990) reiterates that, although communicative purpose is of paramount importance in *genre* identification, formal or structural features and audience expectations are ways of recognising whether an exemplar is prototypical of a certain *genre*.

In our investigation, several characteristics of textbooks and encyclopaedias are seen to be different from each other. Firstly, textbooks are generally domain specific, for instance, one textbook for one domain area, such as geography, history and literature, whereas, encyclopaedias are generally not domain specific. They contain various topics from different content areas. Even with specialised encyclopaedias, such as an Encyclopaedia of Science and Technology, the contents tend to be eclectic, for example, including Physics, Chemistry or Medicine. Secondly, textbooks tend to be comprised of a number of chapters arranged in sequence, while encyclopaedias are comprised of volumes. Although the volumes of encyclopaedias are also arranged in numerical order, the arrangement of the contents is typically in alphabetical order. Thirdly, textbooks have a list of contents on the front page while encyclopaedias do not. Fourthly, textbooks have indexes at the end, while encyclopaedias place indexes in a separate volume. In sum, these prototypical characteristics show that textbooks and encyclopaedias constitute *genre* classes of their own.

4.   **The rationale behind a** *genre* **establishes constraints on allowable contributions in terms of their content, positioning and form:** There is a rationale behind the purpose of a communicative event. The example Swales (1990) provides is administrative correspondence (or letter) and a number of its establishable genres such as the good-news letter and the bad-news letter. The shared rationales behind these letters give rise to conventions which in turn determine the schematic structure

of the communication and also delimit the lexical and syntactic choices. Burgess (1997) sums up by saying that 'wherever a different rationale emerges so will a separate genre' (p.77). Therefore, these rationales shared by the members of the discourse community facilitate both the production and reception of the *genre*.

In this study, the first rationale behind producing textbooks is to provide specialised knowledge to students or people who are formally in the process of acquiring knowledge, whereas the rationale behind producing encyclopaedias is to provide summaries of facts and knowledge to the public. The second rationale of textbooks is to meet the demands of educational institutions, schools etc. while the encyclopaedia is to meet the demands of the general public. The third rationale of both textbooks and encyclopaedias is to make financial profit. However, the market for textbooks is the individual student because they are relatively cheaper than encyclopaedias, whose market is institutions and organisations.

5.   A discourse community's nomenclature for *genre* is an important source of insight: In this point, Swales notes that although insights can be gained from the names given by expert members of a discourse community to genres, these may at times have to be treated with caution. Since these *genre* labels are recognised 'as providing recurring rhetorical action' (Swales, 1990: 55) to classes of communicative events, they may be institutional labels rather than descriptive terms. As an example, the labels 'tutorial' and 'lecture' in educational settings can have two connotations. Firstly, they may be two labels representing the same communicative event, such as "one teacher's 'tutorial' is another teacher's 'lecture'" (Burgess, 1997: 78). Secondly, they may have merged into an indistinct communicative event, for example, a 'lecture' may have interactive small group tasks or a 'tutorial' may have interactive tasks with a computer rather than with a teacher. Swales (1990) suggests that the genre analyst should start by investigating the communicative event of a genre rather than depending on the institutionalised labels.

In our study, the names commonly used by the discourse community are 'textbook' and 'encyclopaedia'. Generally, textbooks are also referred to as books and encyclopaedias as volumes. However, as books and volumes are labels referring to written bound texts, these names do not reveal any difference between textbooks and encyclopaedias. Therefore, we follow Swales' (1990) suggestion stating that

investigators have to depend on the communicative event of a *genre* rather than its labels.

On the basis of the differentiations between textbook and encyclopaedia using Swales definition of *genre*, we therefore adopt the term *genre* to describe the sources of texts used in our study. We have argued that textbooks and encyclopaedias can be differentiated in terms of the sets of characteristics provided by Swales.

The following Table 1.1 summarises the difference between textbook and encyclopaedia *genres* according to Swales' working definition.

Table 1.1 – Genre identification based on Swales' (1990) definition

Criteria	Textbooks	Encyclopaedia
Class of communicative event	• Use language as mode of communication • Students, teachers, lecturers, or specialists as participants/audience • Role of discourse- to teach content from specific areas • Main environment of production and reception - classrooms in schools and universities	• Use language as mode of communication • General public as participants/audience • Role of discourse – to inform content from variety of subject areas • Main environment of production and reception - libraries in schools and universities
Communicative purposes	• Pedagogic purpose • Commercial purpose	• Informative purpose • Pedagogic purpose (sometimes) • Commercial purpose
Prototypicality	• Subject specific • Limited specialised topics (arranged by grading contents) • Consists of a number of chapters arranged by numbers • Well-defined readership • A list of contents at the front • An index at the back	• Not subject specific • Unlimited variety of topics • Consists of a number of volumes arranged alphabetically • Non-defined readership • Does not contain a list of contents at the front • Indices placed in a separate volume
Rationale	• To provide specialised knowledge to students • To meet demands of educational institutions, schools etc.	• To provide facts and knowledge to public • To meet demands of public
Nomenclature	• Books	• Volumes

1.3.4. Language proficiency

Language proficiency is a broad concept which is often poorly defined (Farhady, 1982). For the purpose of the present study, we will explore the meaning of proficiency in terms of overall language proficiency and reading proficiency. As proficiency is an important factor in many L2 studies, we will also briefly examine this concept in the context of L2.

In the area of teaching and testing, Spolsky (1989) and Bialystok (1998) discuss the concept of language proficiency in terms of two approaches, namely, structural/formal and functional approaches. The structural/formal approach considers proficiency in terms of knowledge of the rules, grammar and lexicon of a language. This means that structural knowledge of a language plays an important part in determining whether a person is proficient or otherwise. The functional approach, on the other hand, considers proficiency in terms of a person's ability to conduct specific linguistic and communicative functions in definable situations (Spolsky, 1989). In other words, 'formal approaches attempt to explain language: functional approaches attempt to explain communication.' (Bialystok, 1998: 502). This means that language proficiency not only is concerned with the knowledge of the rules and grammar of a particular language but also the ability to use the language in some definable situations.

A different view of language proficiency is presented by Cummins (1991a) who provides two dimensions of proficiency: attribute-based and input-based aspects of proficiency. Attribute-based aspects of proficiency are dimensions of proficiency which are influenced by a person's personal attributes, such as his/her cognition, personality, age and so on. These are considered stable attributes possessed by the person. Input-based aspects of proficiency, on the other hand, are dimensions of proficiency which are influenced by a person's exposure to the language input over a period of time. Therefore, the quality and quantity of language input will determine the level of proficiency achieved by the person. The language input is also viewed in terms of contextualised and decontextualised language (Cummins, 1991a). Similar to the idea of the functional approach described above, contextualised language cues refer to how meaning is communicated in an interaction in a given situation. Decontextualised language, on the other hand, refers to 'linguistic cues that are independent of the immediate communicative context' (Cummins, 1991a: 71). This seems to relate closely to the idea of the formal approach discussed above.

In general, the discussion above points to the complexity of the concept of language proficiency. While knowledge of language rules and vocabulary is important, it cannot be denied that knowledge of how the language functions in a given situation is also crucial. Furthermore, a person's attributes and the amount of input received are also factors influencing proficiency level.

While the concept of language proficiency is explained in terms of formal and functional approaches, the concept of reading proficiency is explained in terms of the interaction between a reader and a text/writer. Reading proficiency seems to be associated with the efficiency and effectiveness of the interaction. Goodman (1988: 12), for instance, asserts that:

> ... proficient readers are both efficient and effective. They are effective in constructing a meaning that they can assimilate or accommodate and which bears some level of agreement with the original meaning of the author. And readers are efficient in using the least amount of effort to achieve effectiveness. To accomplish this efficiency readers maintain constant focus on constructing the meaning throughout the process, always seeking the most direct path to meaning, always using strategies for reducing uncertainty, always being selective about the use of the cues available and drawing deeply on prior conceptual and linguistic competence. Efficient readers minimize dependence on visual detail. Any reader's proficiency is variable depending on the semantic background brought by the reader to any given reading task.

However, the situation in L2 reading is more complex than the description offered by Goodman. This is mainly due to the putative influence of the reader's L1 reading skills on their L2 reading ability. Cummins (1991a) argues that in L2 reading, there appears to be a degree of interdependence between a reader's L1 and L2 academic skills. Exploring several studies related to L2 reading conducted with Hispanic, Scandinavian and Asian students, Cummins shows that there are some levels of influence of the readers' L1 skills when they read in L2. For instance, in the case of Japanese readers, Cummins discovers that there is a moderately strong relationship between reading in Japanese (L1) and English (L2) despite differences in the two writing systems. This suggests that the transfer of skills from L1 to L2 may occur when the students read in L2. If this is the case, then L2 reading proficiency depends largely on the level of L1 reading skills already acquired by the readers.

In the context of Malaysian students, Hassan (1999) investigates the reading behaviour of Malay pupils reading in L1 (Bahasa Malaysia) and L2 (English). Results of her study show that both L1 reading ability and L2 language proficiency correlate

with L2 reading ability. Although Hassan notes that some level of transfer from L1 reading ability to L2 reading ability is observed for higher proficiency level, the lower proficiency students have to reach a certain language threshold level before the transfer of L1 reading ability to L2 reading ability is observed. These findings suggest the complexity of the relationship between L1 and L2 reading proficiency among Malay students. Since Hassan's study only concentrates on the Malay students' reading behaviour, the level of language transfer between L1 and L2 by other ethnic groups in Malaysia, such as the Chinese and Indians, is still unclear. However, a study (Ho, 1987) conducted in a different context (Singapore) with the same three ethnic groups of students, Chinese, Malays and Indians, to investigate the correlation between subjects' reading in L1 and L2 shows a significant correlation between performances across languages. This means despite the different L1 backgrounds the subjects' reading performance in L1 correlates with their reading performance in L2. These findings seem to lend support to the linguistic interdependence hypothesis. (which will be discussed later in section 2.2.4, Chapter Two).

In contrast to Hassan's (1999) and Ho's (1987) studies which examine the level of transfer from L1 to L2 reading ability, our main interest is to examine the subjects' reading comprehension and strategies in English. In this present research, the subjects' proficiency refers to their overall English language proficiency rather than only their reading proficiency. This is measured by the students' English language result in the Malaysian Certificate of Education examination, their English Language Placement Test in UTM and teacher assessments (see section 3.3.1).

1.3.5 Reading comprehension

The term *reading comprehension* can be defined from two related perspectives, namely, teaching and testing. From the teaching perspective, Urquhart and Weir (1998) discuss the changing focus of attention in the 1970's from 'decoding' to 'comprehension'. This led to some major changes in the teaching of reading. These authors criticise the pedagogic assumptions behind comprehension as put forward by Urquhart (1987 cited in Urquhart and Weir, 1998: 86) namely that:

1) There is such a thing as 'total' and 'perfect' comprehension of a text.

2) Careful reading, ~~which~~ aims to extract perfect comprehension, is superior to any other kind of reading, e.g. skimming, and is, in fact, the only kind of reading which deserves the name.

Urquhart and Weir (1998) argue that these assumptions are pervasive. From the testing perspective, the first assumption is only possible in terms of scoring 100 per cent on comprehension tests (Fry, 1963). However, even with short texts, readers often have many unanswered questions. This implies that 'total' and 'perfect' comprehension may not be possible even with careful reading. The second assumption may also have serious implications in teaching if one type of reading is labelled as 'superior' to another, such as, using skimming and scanning reading compared to careful reading. While skimming and scanning cause 'a drop in comprehension in return for an increase in speed' (Urquhart and Weir, 1998: 86), intensive and careful reading in classrooms may 'result in slow, laborious reading when it is not, in fact, necessary' (Urquhart and Weir, 1998: 87).

Another assumption subjected to criticism by Urquhart and Weir (1998) is the notion that readers interpret and comprehend a text according to their background knowledge. If this is the case, care has to be taken in treating an answer as 'right' as this is subject to the readers' background knowledge. They conclude that the notion of 'ideal comprehension', where a reader is able to recover the author's total intention and meaning, is difficult to obtain since some texts may have more than one interpretation.

In relation to the application of readers' background knowledge in reading, Samuels and Eisenberg (1981) posit that the comprehension process involves the interaction of the cognitive faculties of the human mind and the information contained in a text. These authors stress two main tenets of the text processing models. Firstly, they stress the interactive notion of all the cognitive components involved in comprehension. This means all the components work together and none can work independently. Secondly, they stress that the main goal of reading is comprehension. Therefore, 'all of the parts of the process are ultimately working toward this goal' (Samuels and Eisenberg, 1981: 32). With these two main tenets, these researchers list two factors that are involved in fluent reading, namely, the external factor such as the text and its content, and the internal factor such as the reader's stored knowledge. Therefore, in the view of Samuels and Eisenberg, comprehension is defined as follows:

Comprehension is a process that requires the translation of written language into a form that is usable by the reader's cognitive system. It requires the integration of that information into the network of existing knowledge stored in the reader's long-term memory system. At risk of oversimplification, one can say that the ease and extent of comprehension is related to the degree to which there is a match between the incoming information from the text and the knowledge and information stored in the reader's mind.(1981: 31).

This definition gives rise to two types of comprehension, namely, literal and inferential comprehension. The former occurs when the required information is within a text, while the latter occurs when the required information is outside the text. In this respect, readers are said to employ their background knowledge.

Coley's (1987) notion of comprehension is similar to Samuels and Eisenberg's (1981). To Coley, comprehension is a constructive process whereby readers have to make inferences on the basis of their background knowledge in order to put together the information in the text. Coley sums up by stating that 'the reader's own goals, attitudes and understanding of the communicative intention of the author are factors which must be taken into account' (p. 113). Furthermore, he includes explanations regarding the possible outcomes of the comprehension process. Firstly, a reader may construct an interpretation similar to the meaning intended by the author. Secondly, the reader's interpretation may differ from the author's intended meaning. Thirdly, the reader may fail to interpret the text altogether. These outcomes, according to Coley, may be due to either the text's formal structure or text-type (such as expository, narrative and so on) or because the reader lacks the required knowledge such as lexical or topic-related knowledge. Coley notes that 'the success in comprehension is dependent upon not only knowledge-based but also text-based factors...' (Coley, 1987:114).

For the purpose of our study, the definition put forward by Samuels and Eisenberg (1981) is adopted since this study focuses on the interaction between the readers' background knowledge and the information in the text. Comprehension can be achieved when there is a degree of match between the information in the text and the background knowledge in the reader's mind. The level of understanding can vary according to the way the readers comprehend a text: some readers tend to explicate the literal meaning of a text while others tend to make inferences by using their background knowledge. Further explanations regarding *reading comprehension* are

provided in Chapter two of the literature review (section 2.3.1) where detailed explanations of the role of schemata in *reading comprehension* are provided.

1.3.6   Reading strategies

In order to discuss the term 'strategy', we explore its meaning in the context of learning strategies and *reading strategies*. In the context of learning strategies, Oxford (1993: 175) defines L2 learning strategies as 'specific actions, behaviour, steps, or techniques that students employ – often consciously – to improve their own progress in internalizing, storing, retrieving, and using the L2. Strategies are the tools for active, self-directed involvement that is necessary for developing L2 communicative ability'. Cohen (1998), who agrees with Oxford's (1993) point concerning 'consciousness' in strategy use, postulates that a learner's 'choice' is an important element in making a strategy a conscious action. Aware of the controversy surrounding the element of consciousness in defining strategy, Cohen posits that learners are partially aware of the strategies they use even if they do not give full attention to them. Here, Cohen perceives the element of consciousness as important regardless of whether the learner is aware of the strategies being used.

In reading, the same controversy surrounds the term strategy, that is whether or not a strategy is a conscious action. There appear to be two categories of definition. The first is in line with the notion of strategy as a conscious action (such as Olshavsky, 1977; Kletzien, 1991; Cohen, 1987). For instance, Kletzien (1991: 69) defines strategy as a 'deliberate means of constructing meaning from a text when comprehension is interrupted', Olshavsky (1977: 656) defines strategy as 'a purposeful means of comprehending the author's message', while Cohen (1987: 133) defines strategy as 'those mental processes that readers consciously choose to use in accomplishing reading tasks'. In these definitions, the phrases 'deliberate means', 'purposeful means' and 'consciously choose' strongly indicate that *reading strategies* are conscious actions on the part of a reader.

The second category of definitions, on the other hand, does not overtly make any mention of consciousness but rather implies that consciousness may play a part (see Block, 1986). For instance, Block's (1986) definition of *reading strategies* does not include 'consciousness' as a main element. According to Block, 'comprehension strategies indicate how readers conceive a task, what textual cues they attend to, how

they make sense of what they read, and what they do when they do not understand' (1986:.465). By including the phrases such as 'attend to' and 'make sense', this definition seems to imply that *reading strategies* are perhaps conscious actions. However, the phrase 'what they do when they do not understand' is problematic. For example, if a student consciously ignores some difficult words or sentences when he/she does not understand, can that be classified as a strategy at all?

Another issue related to 'consciousness' and 'unconsciousness' can also be seen in researchers' attempts to differentiate reading strategies from reading skills. Carrell (1998), who agrees with Paris *et al.* (1991 cited in Carrell, 1998), differentiates strategies from skills on the basis of the consciousness and unconsciousness of an action. Interestingly, Paris *et al.* also suggest that there is a potential conflation of these two terms, in that, strategies can become skills when they are automated or skills can become strategies when they are used consciously. Their definition is presented below:

> Skills refer to information-processing techniques that are automatic, whether at the level of recognizing grapheme-phoneme correspondence or summarizing a story. Skills are applied to a text unconsciously for many reasons including expertise, repeated practice, compliance with directions, luck, and naïve use. In contrast strategies are actions selected deliberately to achieve particular goals. An emerging skill can become a strategy when it is used intentionally. Likewise, a strategy can "go underground" and become a skill. Indeed strategies are more efficient and developmentally advanced when they become generated and applied automatically as skill. Thus, strategies are "skills under consideration." (Paris *et al.*,1991 cited in Carrell, 1998:7)

The distinction between skills and strategies may appear clear from the earlier part of the definition. However, the possible conflation of the two terms suggested by the latter part of the definition may pose a problem of differentiation. Does this mean that processing skills like bottom-up, top-down or interactive processes are included as strategies as they may be used both consciously and unconsciously? If this is the case then the term strategy is a wide and amorphous concept.

Little consensus is observed between researchers' use and differentiation of the terms strategies and skill. For instance, Kobeil (1999) notes that Davis (1968) refers to 'inferencing' as a skill while Olshavsky (1977), Pressley and Afflerbach (1995) and Hammadou (1991) refer to it as strategy. Kobeil also comments that in teaching 'Nuttall (1982) uses the terms strategy and skill as synonymous while for Davies and Whitney (1981) both terms are used interchangeably.' (Kobeil, 1999:51).

To address this problem, Urquhart and Weir (1998) provide three ways of differentiating a strategy from a skill. The first is similar to Paris *et al.*'s (1991) differentiation as described above, that is, that a strategy is a conscious action while a skill is an unconscious action. The second is that a strategy is reader-oriented while a skill is text-oriented. Strategies are considered as reader-oriented because strategy research often starts with readers reading a text and then reporting their understanding either introspectively or retrospectively. The strategies captured in the reports are then categorised on the basis of the readers' levels of proficiency in order to study the similarity and differences in using the strategies between the levels. However, skills are considered text-oriented because skills research often starts with a taxonomy of skills which are derived from an analysis of a text. For instance, Munby's (1978) taxonomy of skills, according to Urquhart and Weir (1998), 'is overwhelmingly text based.' (p.96). Therefore, the typical verbs, such as 'understanding' and 'recognise', employed in Munby's taxonomy represent a receptive reader. For example:

> Understanding conceptual meaning
> Understanding the communicative value of sentences
> Understanding the relations within the sentence
> Understanding relations between parts of text through lexical cohesion devices.
> (cited in Urquhart and Weir, 1998: 96)

The third point of differentiation is that strategies are applied when a reader encounters problems in understanding a text. Skills, on the other hand, are automatic actions applied by a reader when processing a text. Therefore, Urquhart and Weir (1998: 98) posit that 'strategies, unlike skills, represent a response to a problem, e.g. failure to understand a word or the significance of a proposition...'. In sum, the differentiations between strategies and skills suggested above provide a deeper understanding of the distinction between the two.

What can be gathered from the above definitions is that reading strategies involve the conscious actions of a reader. But there are also arguments which suggest that reading strategies can also be unconscious actions. In addition, *reading strategies* are reader-oriented and are employed when readers face the problem of understanding a text. But the notion of strategies and skills can be problematic in the sense that they are very much interrelated and overlapping with each other. The definition of strategy adopted in this study is, therefore, similar to Kobeil's (1999: 53) definition, that is 'the cognitive process used by readers consciously and unconsciously'. In line with

Urquhart and Weir's (1998) notion, we perceive that *reading strategies* are reader-oriented. In addition, *reading strategies* are employed when a reader faces the problem of comprehension. This notion is in line with Kletzien's (1991), Olshavky's (1977) and Block's (1986) definitions.

1.4   Thesis organisation

We have explained in this chapter the aims of our study and some brief background information concerning the Malaysian education system. In addition, some working definitions of terms used in this study are offered. In the following chapter, **Chapter Two**, some aspects of reading models pertaining to this study are delineated, followed by a review of the theoretical framework of schema theory. In addition, in order to justify our decisions in conducting this research, we also review past empirical research related to this area. We highlight the inconclusive results found in previous studies which our present investigation attempts to explore further.

We then move to discussions of the research design and methodology of our study in **Chapter Three**. We also report on the pilot study conducted prior to the main study. The purpose of the pilot study was to investigate the suitability of the reading texts used in our research and the measures used to analyse the protocols. Some samples of how the idea unit analysis was conducted are also included in this chapter.

Chapter Four discusses analyses of the reading texts and the subjects' details elicited from a questionnaire. The analyses included are lexical density, topical structure analysis and idea unit analysis. The lexical density provides insights into the readability and difficulty levels of the texts. The topical structure analysis and the idea unit analysis, on the other hand, provide findings regarding the complexity of the text propositions and the nature of the text structure. In addition, analysis of the questionnaire gives information concerning subjects' familiarity with their discipline topics and perception of text difficulty according to genre.

Next, we present the statistical analysis of data in **Chapter Five** using univariate analysis of variance tests to investigate the effects of background knowledge, proficiency and genres on reading comprehension and strategies used.

Chapter Six discusses the performance of individual students. Case studies of four students are described here in order to explore in more detail some additional issues raised by the quantitative analysis.

The closing chapter, which is **Chapter Seven**, offers a conclusion to our study, a summary of the main findings, and recommendations for future research.

1.5 Conclusion

The aim of this chapter is to provide an introduction to the present study and discuss the context in which the study was conducted. The aims of the study have been stated and definitions of terms provided in order to delineate the scope of our research. In the past, a lot of issues which examine the process and product of reading have been investigated. Alderson (2000:6) argues that 'it is still the case that different readers will develop somewhat different understandings of what a text "means" '. This is partly due to the fact that text does not have meaning but rather has 'meaning potential' (Alderson, 2000: 6). The meaning is created in the interaction between readers and texts. Since readers have different knowledge and experiences, the meaning derived from the interaction may also be different.

Although the study of reading has long been conducted from a product-oriented approach, it is the process-oriented approach which now offers means of investigating the cognitive processes of readers. By means of protocol methods, insights have been gained into how readers approach and interact with a text, what strategies they commonly resort to and what routes they take to comprehend a text. In the next chapter, we review past studies conducted in the area of reading comprehension and strategies in order to outline the area for our study.

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