

**A Descriptive Study of Thai EFL Students' Comprehension
Monitoring Strategies when Reading in English**

by

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A Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

in the Department of
Communication and Social Foundations

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University of Victoria

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0-612-32712-4

Supervisor: Dr. Robert Anthony

ABSTRACT

This research describes and investigates comprehension monitoring strategies of 16 EFL Thai second and fourth year undergraduate students at Chulalongkorn University, Bangkok, Thailand, reading an English expository text. All 16 subjects were selected from the Faculty of Communication Arts and all performed well academically. The subjects were placed into two English language proficiency levels -- higher and lower -- as assessed by their grades in English and TOEFL scores. The subjects were asked to verbalize their thoughts while reading, using the think-aloud technique. The subjects were also asked to summarize the text after the completion of the think-aloud task. In the first analysis, 28 strategies were identified and were arranged into six categories according to their functional purposes. In the second analysis, the study explored whether different English proficiency levels have an effect on the subjects' strategy use. The results demonstrated that there were only three strategies which had statistically significant differences between the two groups of proficiency. The findings also showed the six most frequently used strategies for each proficiency group were the same in rank order. The findings suggest that differences in English proficiency may not have much impact on strategy use by Thai readers who are successful in their academic performance. They may use their acquired learning strategies and their high cognitive and academic abilities to compensate for their limited English language competence. The third analysis investigated whether a two-year time difference in academic setting between the second and fourth year students would have an effect on different strategy usage. The findings showed that there was not much difference in strategy use

between these two groups. The findings suggest that a two-year time difference in the foreign language academic setting may not play an important role in different reading behaviours. In addition, since these subjects were all young adults studying at the university level in the same area of study, age might not be a key factor in the differences in the performance of these two groups. This research also compares the strategies identified in this study with the strategies in the literature, and identifies efficient and inefficient reading behaviours. Individual differences of reading behaviours among these 16 subjects are also noted. Furthermore, these subjects are also placed into five types of categories according to their reading behaviours. The research includes pedagogical and research implications, acknowledges its limitations and concludes with suggestions for future research.

Table of Contents

	Page
Abstract	ii
Table of Contents	iv
List of Tables	vii
List of Figures	viii
Acknowledgements	ix
In Memory	x
CHAPTER ONE Introduction	1
The Purpose of the Study	5
Statement of the Problem	7
Assumptions	8
Definitions	9
Summary of Chapter One	11
CHAPTER TWO Theoretical Construct and Literature Review	13
Theoretical Construct	13
The Impact of Target Language Proficiency in ESL/EFL Reading	13
Review of the Literature	18
Developments in Second Language Reading Research	18
Metacognition	20
Metacognition and Reading	22
Comprehension Monitoring Strategies	23
CHAPTER THREE Methodological Review	26
Techniques Used to Gain Access to Cognitive Processes	26
Think-aloud	27
Review of Think-aloud Procedures	34
Research Using Think-aloud in First Language Reading	35
Research Using Think-aloud in Second Language Comprehension Monitoring Strategies	37

CHAPTER FOUR	The Study	42
	The Pilot Study	42
	The Main Study	48
	The Selection of the Passage	48
	The Contact with the Institute of International Education	50
	The Procedures of the Subject Selection	50
	The Practice Session of Think-aloud	56
	The Research Session	61
	Transcriptions and Analysis Procedure	62
	Categorizations of the Data	63
	Statement	63
	Forming Idea Units	63
	Categorizations of Strategies	68
	Strategies	72
	Categories	74
	Inter-rater Reliability	75
CHAPTER FIVE	Discussions of the Findings	79
	Discussions of the First Research Statement:	
	Descriptions of Comprehension Monitoring Strategies	79
	Category 1. Understanding the Meaning of the Text	80
	Category 2. Rationalization	91
	Category 3. Interaction with the Text	95
	Category 4. Enquiring Clarification	104
	Category 5. Comprehension Monitoring	108
	Category 6. Text Structure and Vocabulary	122
	The Second Research Statement and the Findings	132
	The Strategy of World Knowledge	132
	The Strategy of Rereading	137
	The Strategy of Expressing Intention to Return to an earlier Part of the Text	137
	The Findings in Relation to the Six Types of Categories of Strategies	137
	The Third Research Statement and the Findings	144

	Page
CHAPTER SIX	
Discussion of the Findings and the Theoretical Construct	148
Discussion of the Findings in Relation to Target Language Proficiency and the Comprehension Monitoring Strategy Use in Reading	148
The Differences in Strategy Use Between the Two Groups of Proficiency	149
The Average Sequential Order of Frequency of Strategies Among the Higher and the Lower Proficiency Subjects	162
The Role of Target Language Proficiency and the First Language Skills on Comprehension Monitoring Strategy Use.	164
Comparison of the 28 Strategies to the Strategies in Other Studies Reviewed in the Literature	170
Discussion of the Findings in Relation to the Third Research Statement	177
Individual Differences of Strategy Users	179
Subjects in the Higher Proficiency Level Group	180
Subjects in the Lower Proficiency Level Group	194
 CHAPTER SEVEN	
Conclusions	206
Summary of the Findings	206
Types of Readers	209
Pedagogical and Research Implications	214
Limitations of the Study	228
Suggestions for Future Research	229
 References	 232
Appendix A: Citations of the Nine Articles and Sample Articles	240
Appendix B: A Written Description and Explanation of the Procedures during the Orientation Sessions	242
Appendix C: The Instruction of the Thinking-aloud Task	245
Appendix D: Dr. SupaneeChinawong's Comments on the Researcher's Translation of the Data from Thai into English	248

List of Tables

	Page
Table 1. Information about the 16 Subjects	57
Table 2. Inter-rater reliability	78
Table 3. The Frequency of the 28 Strategies Used by the 16 Subjects	81
Table 4. The Mean Frequency of the 28 Strategies of the Entire Population, the Higher Frequency, and the Lower Frequency Group	133
Table 5. The Hierarchical Order of Frequency of Strategies of the Lower and the Higher Proficiency Group	139
Table 6. The Frequency and Rank Order of Rereading and Translation in Lower Proficiency Group	141
Table 7. The Frequency and Rank Order of Rereading and Translation in Higher Proficiency Group	142
Table 8. The Frequency of the Number of Words (1-5) Verbalized by the 16 Subjects in Reading, Rereading, and Translation from sentences 1-10	152
Table 9. Types of Readers	210

List of Figures

	Page
Figure 1. The 16 Subjects' Use of Their Strategies	83
Figure 2. The Mean Frequency of the Six Categories	131
Figure 3. The Mean Frequency of the Use of the 28 Strategies by the Higher and the Lower Proficiency Group	135
Figure 4. The Mean Frequency of the Six Categories Used by the Higher and the Lower Proficiency Group	136
Figure 5. The Use of the 28 Strategies by the Higher Proficiency Second and Fourth Year Subjects	145
Figure 6. The Use of the 28 Strategies by the Lower Proficiency Second and Fourth Year Subjects	146

Acknowledgements

In the Name of God, Most Gracious, Most Merciful. All Praise is due to God alone, the Sustainer of all the worlds. I am grateful to God, the Almighty, Who has granted me good faith during my days of research and my nights of doubt, and Who has granted me goodness, virtues, and success.

I wish to express my gratitude to my beloved mother, Mrs. Ladda Katib, who has always believed in me. I wish to sincerely acknowledge the perceptive comments, feedback, and support of Dr. Robert Anthony, my academic advisor, and my committee members--Dr. John Harker, Dr. Mary Sakari, Dr. Wanda Boyer. I also would like to thank Dr. John Anderson for his suggestions on statistics.

Without the assistance and moral support of Dr. Supanee Chinnawongs during my research in Thailand, my research would not have gone as smoothly. I wish to thank the three independent raters: Hua Tang, Sandy Shook, and Colin Chasteauneuf. I also would like to thank Amanda Griesbach for her thorough editing and for her friendship.

Amongst my best friends, the Dearden Family, the Thoreau Family, Lucy Shifrin, Dr. Thanyathip Sripana, Siriwan Trangkasombat, and Padiwarada Prasartkul, I sincerely appreciate their continuing support, which has helped brighten my long days of writing and editing. And last, but certainly not least, my dear sisters and brothers, and their families--Kusuma, Morakot, Potchavit, and Kanissorn, and my dear cousin, Wattana Posakrishna, have helped lessen my concerns about living so far apart from my family.

In Memory

In memory of dear father, who, regrettably, did not live to see my highest academic achievement. I miss him dearly.

CHAPTER ONE

Introduction

Of the four language modes (listening, speaking, reading, and writing) in studying English as a foreign language (EFL), reading is considered one of the most important sources for language learning in the EFL setting (Alderson, 1984; Dubin & Bycina, 1991; Eskey, 1973; Grabe, 1991). EFL learners are exposed to a foreign language more through reading than any other mode. Dubin and Bycina (1991) state that besides EFL teachers' responsibility to teach language to students, it is expected that they also act as reading skills teachers because reading has become an essential concern in second and foreign language curriculum. "In fact, reading is often the chief goal of learners in countries where English is taught as a foreign language" (p. 195).

Grabe (1991) points out several reasons for current research expansion in second language reading (L2). First, there are several learner groups in ESL/EFL contexts such as learners in ESL/EFL academic reading, in foreign language reading, and in second language public school student reading. The second reason is the acknowledgement of the needs of these different groups of learners. Another contributing factor is the acknowledgment that perhaps it is reading which is the most important

source for L2 learners in academic settings. Furthermore, a recent trend has focused attention on comprehension processes. These factors have also contributed significantly to pedagogical practices in L2 reading (Grabe, 1991). Therefore, reading plays an essential role in L2 learning.

Reading is an important medium that helps Thai learners gain access to English language. It is the source of language learning to which Thai learners are most exposed from the beginning of their English language study. Still, reading in English causes difficulty for Thai learners.

Although many researchers have tried to identify the causes of problems in ESL/EFL reading, comprehension breakdowns are caused by many variables. Reading in a second language is more complex than reading in the first language (L1) since it involves various and complicated factors. For example, does a learner's L1 reading ability play a role in his or her L2 reading ability? What about a reader's limited knowledge in vocabulary, grammar, or syntactic structure in L2? Does a lack of schemata have more or less effect on a learner's L2 reading than syntactic complexity? Does a reader monitor his or her comprehension effectively? Dubin and Bycina (1991) discuss one of the problems which still exist in foreign or second language reading classes: Too often the reading courses have been used to teach language structure and vocabulary rather than the

skills of reading. Alderson (1984) states that most foreign language learners “fail to learn to read adequately” (p. 1).

Woytak (1984) also points out that poor reading ability among adult learners in foreign language settings has been due, in part, to the fact that language courses which have been based on traditional approaches such as the audio-lingual method and the structural approach “have in the past treated reading as a Cinderella skill; some courses tended to emphasize oral and written production at the expenses of reading and listening comprehension” (p. 509). Woytak (1984), in referring to Cates and Swaffar (1979), argues that experience indicates that the above-mentioned traditional approaches do not necessarily produce ability in text comprehension.

Carrell (1984) criticizes the traditional linguistic views of reading comprehension when she suggests:

In these essentially linguistic views of comprehension, each word, each well-formed sentence, and every well-formed text “has a meaning.” Meaning is conceived to be “in” the text, to have a separate, independent existence from the reader.

Failure to comprehend a nondefective text is viewed as being due to language-specific deficit--perhaps the word was not in the reader’s vocabulary, a rule of grammar was misapplied,

an anaphoric cohesive tie was improperly coordinated, and so on. (p. 332)

Recently, there has been an interest in ESL readers, texts, and the interaction of ESL readers with the text, which has stimulated scholars in the area of ESL reading to undertake studies in order to understand ESL learners' reading processes. Schema theory has received much attention from ESL researchers because it helps explain why some ESL readers have difficulties comprehending unfamiliar texts. Schema theory views readers comprehending a text as an interactional process between readers' background knowledge and the text itself. According to the schema theory, readers who have a good command of and store a great deal of vocabulary in the target language can still have difficulties when reading an unfamiliar text due to either different content schemata or formal schemata or both. More recently, in the area of ESL reading, attention has shifted to comprehension monitoring strategies in the hope of finding out how ESL readers monitor their comprehension and how they deal with the text when they encounter reading difficulties.

Due to the fact that the area of comprehension monitoring strategies in ESL reading is still in its infancy, a great deal of research is based on L1 reading because of its in-depth literature. Many scholars in ESL reading

have called for more research and studies in this area (Casanave, 1988; Hosenfeld, 1977).

In the area of reading, comprehension breakdowns must be explained by several variables. Reading in general is already a complex process. Foreign language reading has an additional level of complexity to this already complicated process (Cotterall, 1990). It involves more complex factors which could have an impact on learners' target language reading ability. Some of these factors include learners' lack of target language proficiency and vocabulary (Dubin & Bycina, 1991; Kasper, 1993; Koda, 1989; Parry, 1991), their inefficient reading strategies caused by a lack of metacognitive awareness (Barnett, 1988; Carrell, 1989), and their unfamiliarity with content or formal schema of the text (Carrell, 1984; Carrell & Eisterhold, 1983; Carrell & Floyd, 1987). Lebauer (1985) points out that syntactic complexity, which is the level of complexity of syntactic or grammatical structure of the target language, the level of vocabulary difficulty of a text, and the learners' lack of proficiency in the target language, have all been shown to have a great effect on ESL/EFL learners' reading comprehension.

The Purpose of the Study

Because reading plays a significant role as a source of acquiring language ability for second/foreign language learners, several applied

linguists have tried to find causes of problems in ESL/EFL reading so that solutions can be recommended for language teachers. The issue of the impact of L1 reading ability and L2 proficiency on L2 reading comprehension has been an ongoing debate. There are two different schools of thought regarding how these two factors affect L2 reading ability. The first view (Coady, 1979; Cummins, 1980; Hudson, 1982) suggests that L1 reading ability, L1 higher level conceptual abilities, and cognitive/academic L1 proficiency of learners have great effects on their L2 reading comprehension. Consequently, poor L2 reading ability is due to lack of these skills in the first language or the failure to transfer them. The second view contends that target language reading ability (second/foreign language) seems to be mainly a result of that language proficiency or that there is a relation between target language reading ability and readers' target language competence (Clarke, 1979, 1980; Cziko, 1980). The issue of the impact of these two factors on second/foreign language reading ability will be discussed in more detail in Chapter Two.

This study investigates comprehension monitoring strategies in reading of Thai students using think-aloud as a technique. Gaining insights into comprehension monitoring strategies of Thai language learners may help in understanding their reading processes and their difficulties in

reading foreign texts, and in turn, could expand research in EFL reading. Furthermore, this study also explores the use of comprehension monitoring strategies of Thai students at Chulalongkorn University at two levels of English language proficiency in order to identify the impact of foreign language proficiency on strategy use in reading of Thai learners. In addition, this study also investigates whether a two-year time difference in the academic setting is an important element in developing reading strategies. The strategies of the higher English proficiency fourth year university students are compared with the higher English proficiency second year students; and the strategies of the lower English proficiency fourth year students are compared with the lower English proficiency second year students.

Statement of the Problem

This study seeks to:

1. describe the comprehension monitoring strategies reported through the think-aloud technique by Thai EFL undergraduate students with good academic performance at Chulalongkorn University while reading an English expository text;
2. compare the use of comprehension monitoring strategies by proficiency levels as determined by the TOEFL scores and academic records; and

3. compare the use of comprehension monitoring strategies between the subjects in the second year and the fourth year.

Assumptions

1. Because past research has proved that target language proficiency has a great impact on ESL/EFL reading comprehension, different language proficiency levels of the subjects in this study might also effect the comprehension monitoring strategy use by these subjects.

2. Although the selected subjects in this study were in different years at the university (second and fourth year), they were considered young adults. Therefore, there might not be any much difference in strategy use between these two groups.

3. EFL students in Thailand would be able to perform the think-aloud task as well as native speakers of English or ESL students if they were well-trained in the technique.

4. The think-aloud technique would be able to access lower level as well as higher level reading strategies.

5. Because it is the EFL learning environment, the strategies related to grammatical structure and vocabulary would be utilized frequently by the subjects.

Definitions

ESL/EFL. ESL (English as a second language) refers to studying the English language in a learning situation of the target culture, i.e., foreign students or immigrants studying English in Canada, while EFL (English as a foreign language) means studying the English language in learners' own countries, i.e., Thai students studying English in Thailand. However, in this research, as in many second language acquisition contexts, ESL refers to the study of the English language by nonnative speakers in both the target culture and in the learners' own countries (unless otherwise indicated). On the other hand, EFL specifically means studying the English language by nonnative speakers in their own countries.

L1 and L2. L1 stands for first language and L2 stands for second language.

HPG and LPG. HPG stands for higher (language) proficiency group and LPG stands for lower (language) proficiency group.

Metacognition. Metacognition refers to the knowledge or understanding that one possesses about one's own cognitive process (Baker & Brown, 1989).

Comprehension monitoring strategies. Comprehension monitoring is considered to be a metacognitive skill (Baker & Brown, 1989; Brown, 1980; Brown, Armbruster, & Baker, 1986; Casanave, 1988;

Flavell, 1976; Pitts, 1983). Casanave (1988) refers to comprehension monitoring as one kind of activity under the umbrella of metacognition, which consists of “any behaviors that allow readers to judge whether comprehension is taking place and that help them decide whether and how to take compensatory action when necessary” (p. 288). In this study, the term comprehension monitoring strategies refers to reading behaviours or actions taken by the subjects while reading the text.

Think-aloud. Think-aloud, thinking-out-loud (TOL), or thinking-aloud is a technique which was first used with problem-solving tasks. Later, it was developed for use in gaining access to mental states such as comprehension monitoring in reading. In this study, think-aloud is used with Thai subjects by asking them to verbalize their thoughts while they are reading an English expository text. In this study, this technique will be referred to as ‘think-aloud’ or ‘TOL.’

Idea unit. The idea unit is a systematic method of discourse analysis of the think-aloud protocols in this study which is based upon the analysis of the subject’s verbal expression of one idea or concept while processing the text. The analysis does not rely on grammatical structures. According to Pereira (1991), the idea unit is “a TOL response referring to a single concept, idea, or feature in the text” (p. 54). There are several

complexities of the idea unit which will be elaborated under the section of 'categorization of the data' in Chapter Four.

Strategy. A strategy refers to any type of action, movement, or reading behaviour initiated by the reader in order to understand the text, to reach the goal of understanding, or to solve problems when difficulty in comprehension arises. According to van Dijk and Kintsch (1983), a strategy is "the idea of an agent about the best way to act in order to reach a goal" (p. 64-65). Strategy is further discussed in Chapter Four.

Segment. A segment is the smallest TOL unit such as one utterance(s) or statement(s) made by the reader, containing one single idea, concept or topic, and one single strategy.

Category. A category, in this study, is an attempt to group certain strategies together according to their functional purposes. Each category consists of strategies which are perceived by the researcher to share common purposes. Category is further discussed in Chapter Four.

Summary of Chapter One

Chapter One discusses the role of reading English in a foreign language setting. It states different reading problems which language learners encounter. Chapter One particularly discusses one of the most important areas in reading, that is, comprehension monitoring strategies used by language learners in dealing with English materials and why it is

important to continue research in this area. In addition, it also discusses the impact of target language proficiency on learners' reading ability. Chapter One also includes the purpose of the study, the statement of the problem, and the assumptions, and concludes with the definitions of different terms used in this research. Chapter Two discusses the theoretical construct of this study and the review of the literature.

CHAPTER TWO

Theoretical Construct and Literature Review

Theoretical Construct

The Impact of Target Language Proficiency in ESL/EFL

Reading

In ESL research, there has been an argument whether problems in reading in a foreign language are caused by the reading problem or the target language problem. Both sides of the argument are supported by substantial research (Carrell, 1991; Clarke, 1979, 1980; Coady, 1979; Cummins, 1980; Cziko, 1980; Hudson, 1982).

The research done by Clarke (1979) and Cziko (1980) was reviewed by Hudson (1982), who believes in the effect of L1 reading skills on L2 reading ability. Hudson states that although good readers' performances in Clarke's and Cziko's studies were less successful when facing L2 reading tasks than L1 reading tasks, good readers still performed significantly better than poor readers. Therefore, learners' L1 reading ability also has a significant impact on their L2 reading. Poor L2 reading ability can be due to a lack of good L1 reading skills or a failure to transfer them.

Cummins (1979), Skutnabb-Kangas, and Toukoma (1976) (cited in Cummins, 1980) hypothesized that the cognitive and academic aspects of L1 and L2 are interdependent. This hypothesis is referred to as “interdependence of CALP across languages” (Cummins, 1980, p. 179). Cummins’ theory of Interdependence of Cognitive/Academic Language Proficiency (CALP) is that “the development of proficiency in L2 is partially a function of the level of L1 proficiency at the time when intensive exposure to L2 began” (p. 179). Therefore, good literacy skills in L1 will have a positive effect in L2 learning. Cummins (1980) refers to CALP as “those aspects of language proficiency which are closely related to development of literacy skills in L1 and L2” (p. 177). Coady (1979) believes that the higher level abilities which learners possess in L1 can help L2 learners in L2 reading.

Block (1986) reports that some researchers who believe in an important role of L1 reading ability in L2 reading comprehension argue:

Higher level strategies developed in a first language can be transferred to second language and can operate alongside lower processing strategies... as language proficiency develops, linguistic cues can be used more efficiently and predictions and other cognitive processes will therefore

operate more smoothly. Cognitive strategies, however, are applied throughout the process. (p. 466)

Those who believe it is a target language problem (Clarke, 1979, 1980; Cziko, 1980) contend that second or foreign language reading ability is related to readers' target language proficiency. According to Clarke's (1980) Short Circuit Hypothesis, which recently has been referred to as Linguistic Threshold Hypothesis (LTH) (Bernhardt & Kamil, 1995):

There is some transfer of skills, for the good readers perform better than poor readers in both languages, but limited language proficiency appears to exert a powerful effect on the behaviors utilized by the readers. The results of these studies suggest that, while some form of the 'universal hypothesis' may be justified, the role of language proficiency may be greater than has previously been assumed; apparently, limited control over the language 'short circuits' the good reader's system, causing him/her to revert to poor reader strategies when confronted with a difficult or confusing task in the second language. (Clarke, 1980, p. 206)

Carrell (1991) was motivated by the debate of the two above-mentioned views on L2 reading and hence conducted a study using two

groups of subjects consisting of 45 ESL native speakers of Spanish (group I), and 75 native speakers of English studying Spanish as a foreign language (group II). Both groups were at different proficiency levels in their second or foreign language. These two groups of subjects read texts in both English and Spanish.

The results of Carrell's study show that both L1 reading ability and L2 proficiency have significant effects on performance in L2 reading. However, Carrell states that what was interesting in this study was "the *relative* importance of each of these factors of each of the two groups studied" (p. 167). For the group of ESL Spanish speakers, L1 reading ability (Spanish) had greater impact than L2 proficiency (English) on L2 reading ability. The result, however, was different for the group of native speakers of English with Spanish as their foreign language. Foreign language proficiency (Spanish) affected second language reading ability more than did L1 reading ability (English).

The results of this study have several implications (Carrell, 1991). First, both L1 reading ability and L2 proficiency affect L2 reading. However, which of these two factors is more important could be due to other issues such as the target language settings (second language vs. foreign language), the directionality of language learning (English to Spanish vs. Spanish to English), and the target language proficiency levels.

According to Carrell (1991), “proficiency level in L2 is more critical for learners at slightly lower proficiency levels, when compared to learners at slightly higher levels” (p. 168). This last suggestion coincides with ‘the language threshold theory’ mentioned above (Carrell, 1991). Carrell also cautions against the small number of subjects in the Spanish L1 group in her study. More research is needed in order to be more persuasive about which view is more credible.

Because the issue of English language proficiency plays an important role in EFL reading in the academic setting in Thailand, one of the goals of this study is to discover the impact of L1 abilities and English language proficiency on Thai university students’ reading comprehension monitoring strategies. This study investigates how two groups of Thai undergraduate students at Chulalongkorn University with different levels of English language proficiency monitor their thinking processes while reading an English expository text and how the difference in target language proficiency effects their use of comprehension monitoring strategies.

Review of the Literature

Developments in Second Language Reading Research

Reading is an important source of acquiring language in countries such as Thailand where English is taught as a foreign language. In EFL learning, learners are unlikely to be exposed to the target language in authentic situations, whereas in the situation where English is taught as a second language, ESL students or immigrants have more opportunity to experience direct language acquisition. In the former situation, listening and speaking activities are not emphasized much either at school or at the university level. Instead, reading is a skill to which most learners of all subjects who are in the EFL situation are very much exposed (Alderson, 1984; Dubin & Bycina, 1991; Eskey, 1973; Grabe, 1991).

There have been great transitions and changes in ESL reading, both in theory and in practice in the past 25 years (Grabe, 1991). Silberstein (1987) (cited in Grabe, 1991) points out that during the 1960s, when audio-lingualism was at its peak, reading was viewed as a tool to reinforce oral language instruction, to teach grammatical structure and vocabulary, as well as to practice pronunciation. However, two major shifts have changed this limited view of reading; the first, changing ESL institutional needs which audio-lingualism, with its emphasis on oral language skills,

was not able to address. The second shift is related to the changing views of reading theory (Grabe, 1991).

Recently, the trend of the ESL/EFL reading focus has moved from the focus in teaching reading to learning about grammatical structures to the focus in schema theory (Carrell & Eisterhold, 1983; Johnson, 1981) and, most recently, to a focus in the area of comprehension monitoring (Block, 1986, 1991). Schema theory has shed some light on why some learners do not comprehend the text and has brought new hope to researchers of finding methods to solve some reading problems (e.g., Carrell, 1984; Carrell & Eisterhold, 1983; Carrell & Floy, 1987; Johnson, 1981, 1982; Malik, 1990; Nelson, 1987). A number of studies in ESL schema theory of reading demonstrate that syntactic complexity of texts and/or readers' limited linguistic ability or lack of necessary vocabulary knowledge may not render adequate explanations of ESL learners' inefficient reading ability. Both content and formal schemata also play important roles in reading comprehension. For example, if readers' schemata do not fit the one intended by the author or the author does not provide sufficient clues to activate readers' schemata, problems in comprehension may occur. Further, if the rhetorical structure of the text is violated, readers may have difficulty understanding the text.

Most recently, a great number of researchers in ESL/EFL reading have turned their attention to the area of comprehension monitoring, which previously received its popularity in first language reading. These researchers, some of whom had a previous interest in schema theory, have called for more attention to comprehension monitoring strategies (Block, 1986; Casanave, 1988; Hosenfeld, 1977). Some of them (Block, 1986, 1991; Carrell, 1989; Cohen & Hosenfeld, 1981; Devine, 1983) conducted studies which are considered very useful and help pave the way to understanding more of learners' thinking processes while reading. These studies will be discussed later in this chapter.

It is the area of comprehension monitoring strategies which will be examined in this study in order to gain some insights into the thinking process of the EFL Thai readers in order to examine how they process reading comprehension, what kinds of strategies they use during the reading process, and what problems they have while reading.

Metacognition

Metacognition began to receive much attention from researchers around the mid 1970s. Costa (1984) defines metacognition as:

our ability to know what we know and what we don't know.

It occurs in the cerebral cortex and is thought by some

neurologists to be uniquely human. Metacognition is (also) our ability to plan a strategy for producing what information is needed, to be conscious of our own steps and strategies during the act of problem solving, and to reflect on and evaluate the productivity of our own thinking. (p. 57)

According to Flavell (1979), metacognitive knowledge consists of three variables: person, tasks, and strategy. Garner (1987) refers to a situation where cognition fails but metacognition succeeds. For example, a good reader carries on a reading task smoothly with an ability to rapidly construct meaning of the passage. Although the process is flowing smoothly, the reader is still aware of her understanding. However, throughout this process, comprehension failure could occur and this results in a detection of a comprehension problem. “An unconfirmed expectation, an unfamiliar concept, or an important information gap could cause the failure” (Garner, 1987, p. 22). Garner calls this situation cognitive failure, metacognitive success. That is, although a good reader fails to understand that part of the passage, she is aware of such failure and tries to deal with the problem strategically.

Metacognition and Reading

Reading is one of the areas in which research on metacognition has been focused. Brown et al. (1986) refer to knowledge involved in metacognition in reading as consisting of four major variables: text, tasks, strategies, and learner characteristics.

Text refers to the features of reading materials that influence comprehension and memory such as difficulty, clarity, structure. Tasks refer to the requirements of various tasks and purposes of reading that learners commonly encounter in school. Strategies are the activities learners engage in to understand and remember information from the text.

Learner characteristics [are] such [things] as ability, familiarity with the material, motivation, and other personal attributes and states that influence learning. Besides [these], metacognition in reading also involves control or self-regulation. (p. 51)

According to Brown et al. (1986), these four variables are inter-related. Therefore, the knowledge and awareness which the reader has of these variables are important in determining the degree of comprehension while reading. In addition, the reader's self-regulation, the monitoring of

one's own cognitive activities, is an efficient tool leading to effective reading comprehension. Efficient strategies are needed when difficulties in comprehension occur.

Baker and Brown (1986) explain the notion of metacognition by pointing out that there are two clusters of activities which are included in the definition given by Flavell: “knowledge about cognition and regulation of cognition” (p. 353). The first cluster, knowledge about cognition, is knowledge which one possesses about one's own cognitive resources. This knowledge also encompasses the compatibility between the learner and the learning situation. The second cluster, self-regulatory mechanisms, is assumed to be employed by an efficient learner when problems occur while reading. These self-regulatory mechanisms include “checking the outcome of any attempt to solve the problem, planning one's next move, monitoring the effectiveness of any attempted action, and testing, revising, and evaluating one's strategies for learning” (Baker & Brown, 1986 p. 354). An active monitoring of one's own cognitive activities is an important factor leading to effective learning. In contrast, failure to monitor can result in reading problems (Baker & Brown, 1986).

Comprehension Monitoring Strategies

“Reading comprehension involves many perceptual and cognitive skills, but a major component is the ability to monitor one's level of

understanding while reading” (Paris & Myers, 1981, p. 5).

Comprehension monitoring, an important aspect of metacognition, consists of three behaviours of evaluation, which is making an evaluation of one’s own state of understanding during reading process; planning, which is generating a plan to select probable strategies relevant to one’s comprehension problem; and regulation, which is the implementation of appropriate regulatory strategies to solve the problem (Paris & Myers, 1981).

Casanave (1988) refers to Palincsar and Brown (1984), who describe successful readers employing effective strategies while reading. “They question and elaborate their own knowledge and the content of the text; they test their understanding in a variety of ways, they ‘debug’ when something signals that they misunderstood” (cited in Casanave, 1988, p. 288).

Within comprehension monitoring strategies, Brown (1980) distinguishes between an ‘automatic’ state and ‘debugging’ state. As stated above, comprehension monitoring is involved in reading for comprehension. However, the good reader is so skillful that the process of reading flows smoothly and automatically until a comprehension problem occurs and is detected by this type of reader. This makes the reader slow down because extra time is needed to figure out the problem. At this stage,

debugging strategies play a role. When comprehension ceases, the reader must decide whether a compensatory strategy is needed and, if so, which strategy is appropriate. Brown (1980) focuses mainly on the debugging strategies. She identifies 'active strategies of monitoring, checking, and self-testing' as falling under the category of the debugging state. However, it seems that the above-mentioned strategies are not generally employed during the debugging state when comprehension fails. Rather, these strategies should be considered routine strategies employed by good readers who are always aware of their reading state and use these strategies to constantly monitor their understanding of the material being read.

Casanave (1988), on the other hand, distinguishes between routine monitoring and repair strategies. Casanave identifies "predicting, checking understanding for consistency, and checking for overall understanding" as routine strategies, and "evaluating what the problem is, deciding how to resolve it, implementing the strategy as a result of the decision made, and checking the results" (p. 290) as nonroutine strategic behaviours or repair strategies.

CHAPTER THREE

Methodological Review

This chapter discusses the use of think-aloud as a valuable technique when used with proper procedure, and is a suitable and valid technique to use to gain insight into the thinking process of the Thai undergraduate students in this study. This chapter is divided into four sections:

(a) techniques used to gain access to cognitive processes, focusing on the think-aloud technique; (b) review of the think-aloud procedures; (c) research using think-aloud in first language reading; and (d) research using think-aloud in second language reading.

Techniques Used to Gain Access to Cognitive Processes

In general, there are two types of verbal reports which are useful to process-oriented descriptions: (a) retrospective reports--data which is obtained after the reading task is finished and (b) introspective reports and think aloud--data obtained during the reading process (Block, 1986).

There are some advantages and disadvantages in both types of verbal reports. Retrospective reports obtained by asking readers to recall their actions during the reading process may not render an accurate picture of their reading behaviours because these types of reports may be inaccurate or unintentionally incomplete (Hare, 1981). Block (1986) also refers to

Johnson (1983), and Winograd and Johnson (1982), who point out that the disadvantages of retrospective reports are that “they do not reveal why readers fail to understand nor how they are processing text” (p. 464). Introspective reports, on the other hand, give an opportunity to the researcher or the teacher to gain some insight into what is going on in the mind of the learner. This study uses think-aloud as a technique to gain access into the reader’s reading process and therefore will focus only on this technique.

Think-aloud. Think-aloud, thinking-aloud or thinking-out-loud (TOL), which is considered to be a direct way of observing an *invisible process*, was previously used with problem-solving tasks (Newell & Simon, 1972). According to Thorndike (1917), reading is considered a type of problem-solving activity; therefore, TOL may also be adopted to recognize learners’ comprehension monitoring strategies in reading.

Although many cognitive processes related to comprehension occur outside of awareness, a successful reader is likely to be aware of cognitive activities that occur while reading (Olson, Duffy, & Mack, 1984). Olson et al. (1984) believe that TOL is an effective tool to use in order to gain information about comprehension processes. They were encouraged by Newell and Simon’s (1972) study in problem-solving which shows that

TOL has proven to be an effective research instrument and by their belief that “intelligent reading has many affinities with problem-solving” (p. 253). Randall, Fairbank, and Kennedy (1986) state that traditional diagnostic techniques such as standardized tests or even text analysis and comparison with readers’ recalls focus on information about general areas of readers’ strengths and weaknesses and the end-product of comprehension, but are not able to provide useful insights into their thinking process as they try to comprehend texts. They point out that teachers also need a diagnostic tool that could enable them to trace the process by which readers understand the meaning and interact with texts.

The TOL technique has numerous virtues and can be a worthwhile instrument in gaining insights into readers’ mental activity. Based on a considerable number of studies thus far, it is considered a valuable technique in providing researchers with protocols on how readers process their thoughts while reading and how they solve problems when comprehension fails. Researchers should be aware of the nature of the TOL technique. That is, the protocols reveal what the reader has in mind during reading, not *direct strategies*. Information received, such as the strategies used while reading, has to be inferred by researchers or instructors. With this in mind, the task, the instruction, and other factors involved in the experiment can be set to enhance the usefulness of think-

aloud (Olson et al., 1984). Ericsson and Simon (1980) contend that some insights can be gained into cognitive processes if correct methods are used and data are appropriately collected. TOL adds information about the reading strategies ESL readers use, an information which traditional comprehension tests may not be able to provide (Connor, 1988).

The TOL task varies according to the purpose of researchers. If the goal is to gain unanalyzed information about readers' thinking processes, then readers should be told to "let the thoughts flow verbally without trying to control, direct, or observe them... thus think-aloud data are, by their very nature, unanalyzed and without abstraction" (Cohen & Hosenfeld, 1981, p. 286). Olson et al. (1984) refer to Ericsson and Simon (1980), who give suggestions regarding the use of TOL. First, information about the immediate awareness of readers should be the focus of the TOL task, not explanations of their behaviours. Second, what readers are thinking about at the time they are reading, not what they remember thinking about earlier, should be reported. Third, readers should be encouraged to talk about aspects of their immediate experience which they can talk about, taking into account the fact that some processes are not accessible to introspection nor easy to verbalize. Fourth, the nature of the TOL protocols is not a direct reflection of thought processes, but rather

data of underlying thoughts; and that theoretical constructs must be inferred from the protocols.

Ericsson and Simon (1980) address one concern: “the failure of subjects to report some information does not demonstrate the uselessness of verbal reports. Incompleteness of reports may make some information unavailable, but it does not invalidate the information that is present” (p. 243).

As a result of their work using the TOL technique, Randall et al. (1986) contend that protocols received from this technique are powerful as they can be used by teachers or researchers as diagnostic tools for their students to receive useful information about the interactive nature of the reading process. For example, some students may employ a useful strategy inappropriately in a way that hinders the main focus of the text. “Using the protocols procedure the teacher can observe how students gain insights into their own reading habits as they go through the protocol process” (p. 241). Randall et al. refer to the studies done by Christopherson, Schultz, and Warren (1981), Garner (1982), Jacobson (1973), Lytle (1982), and Olshavsky (1977), pointing out that another benefit of TOL protocols is that sometimes researchers can make valuable inferences from the protocols as the readers interact with the text, add, omit, or substitute information, make generalizations or inferences, or even distort

information in the text. TOL gives an opportunity to teachers who otherwise may not be aware of reasons why their students arrive at wrong conclusions in reading comprehension (Cohen, 1986). Rankin (1988) states:

In uncovering these hidden thought processes, researchers hope to be able to contribute to our body of knowledge in both theoretical and practical ways. By knowing what strategies second-language readers actually use when reading (as opposed to what we think they do), we will not only improve our understanding of reading as a communicative act but also our understanding of how it might best be taught. (p. 122)

Like any other technique, think-aloud has limitations and drawbacks of which researchers should be aware. Paris, Wasik, and van de Westhuizen (1988) point out some problems with the technique: many underlying cognitive processes may not be accessible at a conscious level to verbalize; the reader's choice of words may be inaccurate; and other factors such as age, anxiety, or self-disclosure may affect protocols.

Another limitation of TOL is that it may be more applicable to readers who are readily able to master the technique, to introspect and

articulate their reading behaviours (Carrell, 1989). Therefore, there is a need to train subjects to be familiar with the procedure. Block (1991) notes an additional limitation of TOL for L2 readers is that protocols may be incomplete as a result of readers' limited L2 proficiency.

Another criticism comes from the people who are skeptical about verbal reports as data. This criticism, such as the one from Nisbett and Wilson (1977) (as referred to by Ericsson & Simon, 1980; Garner, 1982; Olson et al., 1984), focuses on their unreliability. Garner (1982) refers to Nisbett and Wilson (1977), who are skeptical about learner access to "the workings of their own minds" (Garner, 1982, p. 159). Ericsson and Simon (1980), however, respond to the criticism of verbal report as data by pointing out that many of those criticisms are inaccurate. There are several types of verbal reports, and variations in the situations under which data are reported can have a significant impact on what is reported as well as on the data interpretation. This means that the instructions to subjects as well as the objective(s) of the experiment are important, and that one must bear in mind that these have an effect on data received from the subjects (Ericsson & Simon, 1980). According to Ericsson and Simon, methods used to gain verbal reports can result in different verbalizations, for example, using methods which cause subjects to infer or retrospect: "They are generally asked to retrospect about their thought processes in

experiments with many trials or to answer general questions, and thus must try to synthesize all the available information after selective recall” (p. 220). There are several forms of verbal reports such as TOL protocols, retrospective responses to specific probes, and introspective reports to trial observers, and no distinction is made between these varieties. Instead, they are sometimes termed by some researchers as ‘introspection.’ Indistinct types of verbal reports result in criticism of verbal reports as data (Ericsson & Simon, 1980).

Although reading involves both lower level and higher level processes (Carrell & Eisterhold, 1983; Rumelhart, 1977), not every technique is able to capture all processes efficiently. Think-aloud technique is no different. Olson et al. (1984) note that lower level processes such as syntactic and semantic analysis of sentences may be better analyzed by other procedures. However, according to Olson et al., the TOL technique “is best used to study the higher level processes in reading: the inferences, predictions, schemata elaboration, and other complex cognition that occur as part of skilled reading” (p. 255). Olson et al. state:

The TOL task offers an opportunity to collect systematic observations about the thinking that occurs during reading, allowing the investigator to form hypotheses about this level of processing which can in turn be evaluated in a number of

ways, including experimental text. Thus, the optimal use of the TOL task is as a discovery procedure for studying these higher level processes. (p. 256)

However, the results of the pilot study done at Chulalongkorn University in Thailand in January 1993 rendered a different point of view from Olson et al.'s remarks (1984) with regard to the quality of the TOL technique in capturing lower level processes. This difference will be elaborated in Chapter Four, which discusses the pilot study in more detail.

Review of the Think-aloud Procedures

Instructions for TOL to readers can vary according to the individual researcher's study purposes. In general, readers are instructed to read the text and verbally report their thoughts as they are reading. Many researchers told readers to stop wherever they felt they were getting meaning. Some researchers informed their subjects to stop at intervals which were indicated by red dots or asterisks (Block 1986, 1991; Randall et al., 1986). However, by instructing readers to stop at a specific point and verbalize, the thoughts as well as the inferred strategies which occur between the informed specific point may not be accessible by the researcher (Rankin, 1988).

Frequency of probes or interruptions by the researcher also varies. However, researchers are generally involved in interruptions when students are silent for a period of time to make them aware of their thinking process. Randall et al. (1986) suggest that the teacher or researcher use neutral or non-directive cues because, for them, “instruction of comments, discussion, or instruction may obscure the picture of the student's actual reading behavior and prevent the reader from expressing important insights” (p. 250). They suggest that delaying the discussion of the protocol until after the session enhances its potential.

In the present study, the subjects were not told to stop reading and verbalize their thoughts by any specified cues such as at the end of the sentence or after an asterik or a dot. Instead, they were asked to verbalize their thoughts whenever anything came into their mind as they were reading the text.

Research Using Think-aloud in First Language Reading

This section reviews studies done in L1 reading, using TOL as a technique.

Bereiter and Bird (1985) used the TOL procedure to help readers learn to monitor their comprehension and apply strategies when a reading problem occurred. Bereiter and Bird conducted two studies. The first

study was about identification of teachable strategies. In their second study, they placed their subjects into three experimental groups: (a) modeling-plus-instruction, (b) modeling only, and (c) exercise condition, and a control group. They used four potentially teachable strategies obtained from their first study to try on the experimental groups in their second study. The four strategies were: restatement (a simple paraphrase of the original), backtracking (rereading), demanding relationships (recognition of a gap that readers expect to be filled later), and problem formulation. In the post-tests, the experimental group, which received modeling and instruction, out-performed the other three groups.

Current research is interested in the process of *how* readers monitor their comprehension (Steinberg, Bohning, & Chowing, 1991). Steinberg et al. acknowledged the work done by many researchers such as Baker and Brown (1980), Brown (1980), Cross and Paris (1988), and Hare and Smith (1982) which dealt with identifying and carefully looking at the monitoring strategies employed by elementary readers, and by researchers who focused on secondary readers such as Heller (1986), Lindquist-Sanmann (1987), and Olshavsky (1976) (Steinberg et al., 1991). However, few studies, as noted by Steinberg et al., have been attempted on how college readers monitor their comprehension.

Steinberg et al. (1991) conduct a study of comprehension monitoring strategies, using as subjects 20 first year college students identified as nonproficient readers. The purpose of the study is to describe how nonproficient readers at the undergraduate level monitor their comprehension when reading a difficult expository text. Think-aloud is used as a technique to obtain verbal reports from readers while they read a difficult expository text, together with retrospective comments from the subjects. The results describe the subjects' reading behaviours in two ways: (a) as a global description of the word-related, sentence-related, and discourse-related strategies, and (b) as a process description of how the subjects monitor their comprehension when reading proceeds with ease and when problems in comprehension occur.

Research Using Think-aloud in Second Language Comprehension Monitoring Strategies

This section focuses on research done in second/foreign language comprehension monitoring strategies in reading, using TOL as a technique.

Because gaining access into readers' minds is one way of attempting to understand more about reading in a second/foreign language, many researchers have tried to call for a method which could lead to more understanding of learners' thinking processes while reading. Casanave (1988) is one of the researchers in this field who is in favour of the TOL

technique, when she states that measuring instruments such as multiple choice continue to be used while the *process* of comprehension is neglected (Casanave, 1988). Dubin and Bycina (1991) state:

The teaching of reading has often involved little more than assigning the students to a text and requiring them to answer a series of comprehension questions when they have finished. This procedure, however, is really a testing rather than a teaching strategy. It can determine whether the students are already able to extract certain kinds of information from the text, but it does nothing to provide them with the skills and strategies needed to become efficient, effective, and independent readers. Attempting to teach such skills and strategies is the main thrust of current approaches to reading instruction. (p. 202)

According to Clarke and Silberstein (1977), the processing of a reading task incorporates the end-product such as correct responses as well as the process of comprehension. “Our responsibility as reading teachers, therefore, goes beyond presenting our students with passages followed by comprehension questions. We must construct reading tasks which reward students as much for trying as for getting the correct answer” (p. 137).

Parry (1991) refers to the work done by Hill and Larsen (1983) and Block (1986), and states that the process of how readers derive meanings and arrive at their interpretations is no less important than their interpretations.

One of the studies conducted by Block (1986) is to describe in detail the comprehension monitoring strategies used by non-proficient ESL readers (3 Chinese and 3 Spanish). The description includes both the strategies used during the reading task and the product of their reading by using retellings and multiple-choice questions. Moreover, the strategies obtained from these readers' verbal reports are compared with those of native speakers of English who are non-proficient readers.

According to Block, similar amounts of time spent by both groups in performing TOL suggests that all readers are able to exhibit the task. In addition, it appears that ESL readers perform the task at a similar level of ability to native speakers. Block also notes that there does not seem to be a pattern of strategy use which distinguishes one group of readers from the others.

As a result of the study, Block concludes that there are two consistent and distinctive patterns of strategy use. Block categorizes these two patterns of strategy deployment as representations of two main reading

characteristics: (a) integrators, and (b) nonintegrators. These two patterns are characterized by “the extent to which the reader (a) integrated, (b) recognized aspects of text structure, (c) used personal experiences and association, and (d) responded in the extensive mode” (p. 482).

According to Block (1986), several implications and conclusions can be drawn from the study. First, a difference in language does not seem to be related to the different patterns. This implies that strategy use is a stable exhibition which does not depend on specific language features. Second, the results demonstrate that there is some connection between strategy use and the ability to learn. According to the information obtained about these readers, the characteristics of readers who were defined as integrators seemed to be congruent with progress in developing their reading skills and academic success. Non-integrators, in contrast, were less progressive and successful.

Think-aloud has proved to be an efficient technique to gain access to the mental activity of both readers in the first and second/foreign language. Taking into consideration the nature of the technique, the researcher believes that when TOL is used in a cautious manner, for example, training readers to fully understand the instruction and the task, while avoiding probing as much as possible, it will render valuable information on language learners' thinking process while they read English texts, i.e.,

how they process their comprehension while reading, and what kinds of difficulties they have during their reading process.

CHAPTER FOUR

The Study

This chapter contains four parts: (a) The pilot study conducted in Thailand, (b) the main study in Thailand which includes (i.) the selection of the passage, (ii.) the contact with the Institute of International Education located in Bangkok, (iii.) the procedures of the subject selection, (iv.) the practice sessions of the think-aloud technique, and (v.) the main research, (c) the transcriptions and analysis procedures which include categorizations of the data, categorizations of the strategies, and (d) inter-rater reliability.

The Pilot Study

To ensure that the actual study would be workable, a pilot study was carried out at Chulalongkorn University, Bangkok, Thailand between December 1992 and January, 1993, using 6 undergraduate students from several faculties. The pilot study was based on the research question: What are the comprehension monitoring strategies used by Thai undergraduate students when reading an English expository text as identified by the think-aloud method? The present study was considered the first study of comprehension monitoring strategies in Thailand, using

think-aloud as a technique. Therefore, the pilot study was deemed necessary and essential. It was expected that the pilot study would shed some light on how Thai students monitored their comprehension when reading an English expository text and what strategies they used as manifested by TOL. It was also expected that the pilot study would indicate whether the TOL technique would be a valuable tool in learning about Thai readers' thinking process while reading an English text.

Two expository texts were selected in consultation with Dr. Robert Anthony, an academic advisor, and Dr. Peter Evans, a professor in the Faculty of Education. The first article, about racism in South Africa, contained approximately 780 words, and the second article, about exercises in the workplace, contained approximately 540 words. Think-aloud was used as a technique to have subjects report their thoughts aloud.

In order to familiarize the subjects with the the TOL procedures, the researcher explained all the procedures in Thai and gave a demonstration using a trial passage and then asked the subjects to continue with the practice. The experimentation was conducted individually.

In consultation with the academic advisor, the content of the TOL instruction was:

In a moment, I will ask you to read a passage to me. Assume that this is a reading passage that you have to understand. I

would like you to do exactly as you always do when you read the text. Only this time, while you read the text aloud to me, you should also express all your thoughts about your understanding of the text. You may use Thai or English or mix them both. This is not an English test nor a reading test. The reason why I ask you to do this is because I would like to know how you go about figuring out the meaning. And remember that there is no right or wrong way of telling me your thoughts. The purpose of this study is to find out how university students in Thailand figure out the meaning of English language reading passages.

The instruction was given in Thai. The subjects were given an opportunity to ask questions about any part of the procedures which might be unclear to them. They were asked to report their thoughts aloud into a tape-recorder. After the training session and after the researcher made sure that the subjects understood the procedure and felt comfortable with it, it appeared that the subjects did not have any difficulty expressing their thoughts, and that the procedure went fairly smoothly. Most subjects were articulate in reporting their thoughts. The researcher did some probes such as “What are you thinking right now?” when the subjects were silent for a period of time to make them aware of their thinking process and

asked questions when it was unclear to the researcher about what the subject was talking. However, the interventions did not occur frequently.

The time spent for each individual varied according to their degree of text comprehension. The level of difficulty of the two texts also had a considerable impact on the time required by the subjects. The time spent ranged from approximately 30 minutes to 90 minutes. The first article about racism was more difficult than the second article about exercises in the workplace. There were several idiomatic expressions in the first article. The level of vocabulary difficulty was also greater. In addition, it also contained numerous proper names. Two subjects who read this passage spent approximately 90 minutes to complete the task. They spent more time reading the first text than the other four who read the second article.

The subjects who read the article about racism had been in Canada on an exchange program for one year. Although these two subjects were articulate in verbalizing their thoughts, after the task was completed, they complained that the text was difficult for them.

The researcher selected two TOL protocols to analyze. As a result of the data analysis, it was concluded that the TOL technique was effective and would be useful in conducting this type of research. The protocols provided access into how the readers processed their thinking and

comprehension while they were reading. The pilot study gave valuable information to the researcher as to how to conduct the main study properly and how to avoid mistakes in the main study. For example, one comment regarding interventions during the TOL process is that frequent interventions from the researcher during the task may interrupt readers' comprehension processes. This, in turn, may not give an accurate picture of how readers monitor their comprehension at the time they are reading. Therefore, it would be more appropriate to postpone questions until readers finish their task.

The pilot study also revealed some useful information which has so far been mentioned only in Hosenfeld's (1977) study. In asking the readers to read an English text and report their thoughts in Thai (should they wish to do so), at least one strategy, translating, was found in all subjects' verbal reports in the pilot study. The strategy of translation mentioned in these two studies is a strategy used by a reader relaying content read in the text of target language into their own language. The degree of stating information in the text into the subject's native language is viewed as exact or almost identical translation (verbatim translation). This is because both Hosenfeld's study and the researcher's experiment were the only two studies in this area using think-aloud in the foreign language situation, asking the subjects to report their thoughts in their own native language.

In addition, one of the results in this pilot study also showed that the TOL protocols revealed the readers' employment of lower level strategies, e.g., identifying grammatical structure, identifying a part of speech, and using synonyms. The findings of the pilot study, which were different from Olson et al.'s (1984) remarks mentioned in Chapter Three, might be due to the EFL reading situation. It might also be a result of the impact of the target language proficiency; in this case, the level of difficulty of the materials in the subjects' reading comprehension. Researchers in the first language may not be as interested in lower level processes as they are in higher level processes. In addition, native English readers do not employ lower level strategies as often as EFL readers, who encounter difficult foreign materials.

The results of the pilot study also rendered valuable methods of how to conduct the main study and hence some adaptations were made to avoid any shortcomings which might occur during the main study. These adaptations included a proper method to choose an appropriate level of difficulty and content schemata of the text, how to conduct a training session, and avoiding interventions during the TOL task. As a result of the pilot study, it appeared to the researcher that think-aloud is an effective technique to gain access to how Thai readers monitor their comprehension while reading and what kinds of strategies they use to comprehend the text.

The Main Study

This section is divided into (a) the selection of the passage, (b) the contact with the Institute of International Education located in Bangkok, (c) the procedures of the subject selection, (d) the practice sessions of the TOL technique, and (e) the actual research.

The study seeks to:

1. describe the comprehension monitoring strategies reported through the TOL technique by Thai EFL undergraduate students at Chulalongkorn University with good academic performance while reading an English expository text;
2. compare the use of comprehension monitoring strategies by proficiency levels as determined by the TOEFL scores and academic records; and
3. compare the use of comprehension monitoring strategies between the subjects in the second year and the fourth year.

The TOL technique was used as an instrument to gain insights into how Thai students process their thinking while reading.

The Selection of the Passage

Nine passages were selected from several magazines (see Appendix A for citations of the passages). In order to make sure that the passage

readability level was appropriate to subjects' English language proficiency levels, particular criteria were considered. Ten Thai independent raters were asked to assess the level of difficulty of the selected nine passages. Five of these independent raters were high school English teachers from Thailand who were attending a four-week workshop at the University of Victoria. The other five were undergraduate students who were studying at Chulalongkorn University in Thailand. These independent raters were asked to read the passages and determine the level of difficulty of each passage on an enclosed rating sheet using a scale of 1 to 5.

The criteria used in selecting the passages for this study was that only passages which were rated 3's and 4's on a scale of 1 to 5 (from very easy to understand to too difficult to understand) would be considered and only the passage which received the highest number of 3's and 4's from the raters would be used in this study. As a result of the ratings from the 10 independent raters, the passage "Back to Nature" was rated closest to the criteria. That is, 9 out of 10 independent raters rated this passage at the level of difficulty of 3 or 4. Therefore, this passage was chosen to be used in the study. Two other passages "Good Things in Small Packages" and "The Smile - A Global Language," which received the ratings at the level of difficulty of 3 and 4 from eight raters, were chosen as alternates.

The Contact With the Institute of International Education (I.I.E)

The study was conducted at Chulalongkorn University, Bangkok, Thailand. Upon returning to Thailand, the researcher contacted the Institute of International Education (I.I.E.) in Bangkok. The I.I.E. is authorized by the Educational Testing Service (ETS) to administer TOEFL tests in Thailand. The designated staff officers had already been informed by the Director of the TOEFL Research Program in Princeton, New Jersey, that they would be contacted by the researcher with regard to the TOEFL test to be given to the Thai participants in this study. The researcher was informed by a staff officer of the I.I.E. that the researcher could administer the test on the condition that the researcher follow the procedures and regulations specified by the ETS. After the test was administered, the I.I.E. would do the scoring. After the discussion, the researcher received 30 test books and answer sheets from the I.I.E. as requested.

The Procedures of the Subject Selection

At Chulalongkorn University Language Institute, the researcher discussed the selection of the subjects participating in the research with several professors. A decision was made earlier, at a meeting of the Supervisory Committee, that the faculty or department in which students took English courses every year would be chosen. There is only a small

number of these faculties at Chulalongkorn University. After several discussions with the professors at Chulalongkorn University Language Institute, it was decided that the students from the Faculty of Communication Arts, who take English courses every year during their undergraduate study, should be selected.

After this decision was made, the researcher informed the professors who taught English courses to the second and fourth year students of the Faculty of Communication Arts that the researcher would like to ask students in their classes to participate in the study. The researcher briefly explained the study to the professors, and discussed what type of students were likely to be potential participants in this research.

In order to find the subjects who would meet the academic performance and English language proficiency requirements, requests were made to the Division of Assessment of Chulalongkorn University to gain information about the grade point averages of the second and fourth year students in the Faculty of Communication Arts, and to Chulalongkorn University Language Institute General Office to receive information about the English grades of the same subjects.

Since academic performance was one of the criteria in selecting the participants, the researcher consulted Dr. Supanee Chinnawongs, an Assistant Professor at Chulalongkorn University Language Institute. After

the consultation and discussion, it was decided that students whose grade point average was 3.0 or above on a 4.0 scale would be considered potential participants. As a result, names of students whose grade point average was 3.0 or above in the academic data sheets were marked as potential participants. The next step was to look at the English grades of these potential participants in both the second and fourth year. For the higher English proficiency level, an attempt was made to find the students who received as many A's as possible in their English courses. For the fourth year university students, the students who received all A's or several A's with two B's at the most, in their English courses, were selected. For the second year university students, the students who received all A's with one B at the most, in their English courses, were selected. Regarding the lower English proficiency level students, an attempt was made to find students who received as many C's as possible in their English courses. Among these lower English proficiency students, the selected fourth year university students had received all C's, several C's, and one or two B's at the most, and several C's and one A at the most. The selected second year university students had received all C's in their English courses. The screening of the English courses mentioned above was to give the researcher an idea of the level of their English proficiency. The final determination of these potential participants with regard to their English

language proficiency was to take into consideration the combination of the English grades and the TOEFL scores.

At the same time as these procedures were being conducted, the researcher went to the English classes attended by these students. The English instructors of these students made a brief explanation of the researcher's study and then introduced the researcher to their classes. The researcher briefly explained the nature of the study and asked whether the students were interested in participating in the study. The researcher was given an opportunity to talk to interested students individually. The researcher then elaborated on the nature of the research and the procedures. The students were told that they would be given the descriptions of all of the procedures in writing. If they agreed to participate in the study, they would be given a consent form to sign. Later, after consulting with several professors at Chulalongkorn University Language Institute, it was deemed appropriate to give the participants something as a reward for their participation. It was suggested by these professors that perhaps a sum of 200 baht (approximately 10 dollars) would be an appropriate amount. The students who took the TOEFL and were selected to participate in the study would receive 200 Baht. The ones who took the TOEFL and were not qualified to participate in the study would receive 100 Baht (approximately 5 dollars). As a result of these

procedures, 29 students who met the academic and language requirements were selected to take the TOEFL. Of these 29 students, 11 were fourth year students and 18 were second year students. In order to eliminate a discrepancy in their overseas experience, the subjects who had spent more than six months in English speaking countries were not selected to participate in the research.

These 29 potential participants were then administered the TOEFL Institutional Testing Program at Chulalongkorn University by the researcher. At first, it was thought that the students who scored 550 or higher in the TOEFL would be selected as subjects in the higher English language proficiency group, and the students who scored lower than 480 would be selected as subjects in the lower English language proficiency group. However, the results of the TOEFL scores of these students indicated that the criteria for the higher English proficiency was too high. Consequently, the criteria for the TOEFL scores of 550 or higher had to be changed. The researcher then consulted an I.I.E. staff officer about this criteria. The researcher was informed that according to the research done by the ETS, a score of 491 is an average score for Thai students. In consultation with the researcher's academic advisor, it was considered appropriate to lower the criteria in selecting participants for the higher English proficiency group.

There were several reasons why it was difficult to find subjects who would meet all the criteria. First, in consultation with the Supervisory Committee before the researcher started the selection procedure, it was decided that all subjects selected to participate in the research would be from only one faculty to eliminate the issue of different academic backgrounds (heterogenous backgrounds). It was suggested that it would be more appropriate to focus on one group of subjects (homogeneous background). At the same time, however, this posed some problems for student selection. Since the subjects would all come from the same department, the selection to meet all the criteria was limited. A second reason was that the number of students in the Faculty of Communication Arts is small compared to students from many other departments. Third, the criteria of the academic performance (all participants had to have a GPA of at least 3.0) and of the language proficiency (two levels of language proficiency) even limited the selection. Fourth, the selection of only the second and fourth year students also limited potential participants, particularly because the number of students in this department is small.

As a result of the criteria of the academic performance and the English language proficiency, eight students (4 fourth year and 4 second year) who scored 520 and above in TOEFL were selected as subjects with higher English proficiency, and another eight students (4 fourth year and 4

second year) who scored below 470 in TOEFL were selected as subjects with lower English proficiency. These subjects, their academic year, their grade point averages, their English course grades, and their TOEFL scores are presented in Table 1. All names of the participants in this study are pseudonyms to protect their anonymity.

The Practice Session of Think-aloud

A total of 16 students were selected to participate in the research. The subjects were asked by the researcher once again to confirm their consent to participate. The researcher informed the subjects that their official TOEFL scores issued by the ETS would be given to them by the researcher after they completed the TOL task of the actual study. The TOEFL scores were not revealed to them before the task because the researcher did not want the knowledge of the TOEFL scores to have an effect on their performance.

After all the subjects agreed to participate in this study, the date of the practice session of the TOL technique was discussed. An agreement on the date could not be reached since the subjects had different time schedules. After several meetings, a practice session for every subject was deemed highly unlikely to take place. Consequently, four TOL practice sessions were arranged to accommodate every participant. To guard against any discrepancy in distributing information of the procedures to the subjects,

Table 1**Information About the 16 Participants**

The subjects in the higher English proficiency group

Name	Year	G.P.A	English marks	TOEFL
Kathy	4	3.12	A A A A A A	603
Siri-aree	4	3.93	A A A A A A	587
Wattana	4	3.31	A B A A A A	557
Tarin	4	3.52	A B A A A B	533
Sulalai	2	3.05	A A	553
Juti	2	3.07	A A	540
Tara	2	3.71	A B	527
Nirand	2	3.75	A A	520

The subjects in the lower English proficiency group

Name	Year	G.P.A.	English marks	TOEFL
Pim	4	3.24	C C C C C	457
Sandee	4	3.01	B B C C C	450
Tanita	4	3.19	C C A C C C	450
Yajit	4	3.41	B A C C C	437
Pitchaya	2	3.00	C C	463
Anita	2	3.00	C C	457
Chana	2	3.20	C C	447
Patsiri	2	3.08	C C	440

every attempt was made by the researcher to provide identical explanations, descriptions, and modelling to the subjects in all four practice sessions. All subjects were given written descriptions and explanations of all procedures. The subjects were then asked to read along as the researcher explained the nature of the study, the purposes and the procedures that the subjects would need to follow. The content of the written description of the procedures is presented in Appendix B.

When the researcher completed this explanation, the subjects were asked whether they understood everything and whether there were any questions. The subjects were encouraged to ask questions if any issues were not clear to them. Questions which arose in every practice session were:

Do I say everything that I am thinking?

What language would you like me to speak?

Do I read the article aloud?

Can I do the rereading?

Do I also reread aloud?

If I don't understand, and I'm thinking: "I don't understand this at all" or "This is very difficult," do I also make these statements?

What if what I'm thinking is not relevant to the text?

After answering their questions, the researcher told the subjects that the researcher would model the TOL technique to the subjects. A sample article “Violence: a Preventable Disease” (see Appendix A) was distributed to every subject. The subjects were told that as the researcher performed the TOL, the subjects should also read along and try to understand what the researcher was doing. The subjects were also encouraged to think along as the researcher was performing the task. Should there be any questions, the subjects would have an opportunity to ask them after the completion of the modelling. When every subject told the researcher that they understood everything, the researcher started modelling the TOL. After the completion of the task, the subjects were then asked whether they understood what the researcher was doing and whether there were any questions. The researcher answered all questions posed by the subjects and made certain that they understood everything. The subjects were then asked again whether they needed any more modelling. No more modelling was necessary when the subjects informed the researcher that they understood what they were expected to perform.

After the completion of the group orientation, individual practice sessions started. Each subject did a practice session individually with the researcher using sample articles. Each subject was asked to perform the think-aloud technique. The researcher brought a few sample articles for

the practice session in case there was any problem with the level of difficulty of the sample articles used. These articles were items which had previously been selected as potential articles for actual research use, but were not chosen. The level of the difficulty of these articles, using Fry Readability (Fry, 1982), was the college level. The article "Coping With Bereavement" (see Appendix A for citations) was first used. For some subjects, this article seemed too difficult and therefore, another article "Drinking and Driving - A Bad Mix" was used instead (see Appendix A for citations). It was deemed ineffective and inappropriate to adhere to one article in the training session because the purpose of this session was to give readers an opportunity to understand the technique and perform well. Therefore, the article should not be so difficult that the subjects would not feel comfortable with the technique and, therefore, would not be able to express their thoughts in a comfortable manner. Although the subjects understood the technique, they might not be able to verbalize thoughts efficiently if the article was too difficult for them.

After each performance in the individual training session, each subject was encouraged to ask questions of any issues about which he or she felt uncertain. The subjects were told that it was necessary that they understand all the procedures clearly so that they would be able to perform

appropriately in the actual task. Each training session ended after the researcher was satisfied with each subject's TOL performance.

After all training sessions, the date of the participation for the main study for each participant was scheduled at a convenient time. The subjects were told that their task would be audio- and video-recorded.

The Research Session

On the day of the task, each subject was placed in a recording room arranged by the audio-visual staff of Chulalongkorn University Language Institute. Two recording instruments were used in the study: an audio tape cassette recorder and a video cassette recorder. These instruments were prepared by the university audio-visual staff. Each subject sat in a recording room and the researcher sat in the corner of the room a short distance from the subject so that the subject would not feel any pressure. The audio-visual staff member who did the audio and video recordings was in another room out of sight so that the subject would feel comfortable during the entire TOL performance.

Before the commencement of the task, the researcher asked each subject once again whether he or she understood all the procedures. The answer of each subject was affirmative. The subject was given the article "Back to Nature" to perform the TOL. The subject was asked whether he or she had seen this article before; the answer was negative. The

researcher then gave the instructions for the task to the subject. The instruction given is presented in Appendix C.

When the subject told the researcher that he or she understood everything and was ready, the researcher told the subject to begin the task.

After the subject finished the TOL task, the researcher told the subject to summarize the article. The task ended when the subject finished the summarization. The researcher asked a few more questions of the subject's personal background, thanked the subject, and gave the money and the official TOEFL score to the subject.

Transcriptions and Analysis Procedure

The TOL verbalizations of the 16 subjects were audiotaped and videotaped. The audiotaped protocols were transcribed by the researcher. After the transcriptions of the audiotaped protocols were completed, the researcher viewed the videotapes to confirm the accuracy of the audiotaped transcriptions. The audiotapes and the videotapes were played until the researcher was satisfied with the accuracy of the transcriptions. Of the 16 subjects participating in this research, 15 were talking aloud in Thai and one in English. Three Thai transcriptions were then translated into English by the researcher. Three of the four protocols which were submitted for

the inter-rater reliability, together with the translation, were sent to Assistant Professor Dr. Supanee Chinnawongs, a Thai professor at the Language Institute at Chulalongkorn University in Bangkok, Thailand in order to ensure the credibility of the translation by the researcher. Since one of the four protocols submitted for inter-rater reliability was in English, no translation was necessary. Dr. Supanee Chinnawongs' comments on the researcher's translation of the data from Thai to English are presented in Appendix D.

Categorization of the Data

After the transcriptions were completed, analysis of the data was undertaken. The analysis of the data was based on five levels of analysis: statements, idea units, segments, strategies, and categories.

Statement. A statement is an utterance which occurs after the subject finishes reading a segment in the text and before resuming reading the text. A statement may refer to a phrase(s), a clause(s), or a sentence(s).

Forming idea units. In order to be able to analyze and code the data with consistency, a systematic method of identifying discourse units was employed. During discussion with the academic advisor and the supervisory committee members, a few methods of identifying discourse units were discussed and were used on some of the data. Some methods created problems in analyzing and categorizing the data. For example, a

grammatical definition for discourse units posed a question such as: When does the statement start and end?

Since the protocols are verbal reports and not written reports and hence the subjects did not always talk in full sentences, the majority of the statements produced by the subjects were phrases, clauses or even words. How is a statement which contains two clauses analyzed? For example, what is the difference between “I understand this sentence but I don’t agree with it,” and “I understand this sentence. However, I don’t agree with it.” According to the grammatical structure rules, the first is one sentence with two clauses while the second is two sentences. However, the meaning of the first and the second is the same. Another example is how statements such as: “I agree with the author because food shouldn’t be the only factor which causes diseases,” and “I agree with the author. Food shouldn’t be the only factor which causes diseases,” should be analyzed. As a result of potential problems arising from a grammatically-based analysis, it was decided that a definition of discourse units in the protocols in this study should not be based on grammar.

Discourse units based solely upon *changing of the strategy* are not practical in this type of data, either, because they do not reflect the actual picture of the subjects’ thinking process and could distort the data. For example:

I think that's because it's a big difference from protein that we eat nowadays and the protein that they eat in the past. And in the same way as fat, sodium, potassium and calorie. And I think the writer wants us to [be] aware that if we eat these too much, that's not good.

If the data is analyzed on the basis of changing of the strategy to derive categorizations, the above-mentioned statements will only contain one unit because only one strategy is detected, although the statement reveals that, in fact, the subject is talking about two different topics or ideas; hence this statement contains two different ideas in spite of the use of one strategy. The data analysis based on strategy limits the analysis of the thinking process of the subject and creates a distortion of the data. This TOL statement indicates that the subject is making an interpretation of the text. However, "I think that's because it's a big difference from protein that we eat nowadays and the protein that they eat in the past. And in the same way as fat, sodium, potassium and calorie," contains one idea unit of the difference of the diet nowadays and in the past, whereas "And I think the writer wants us to [be] aware that if we eat these too much, that's not good," contains another idea unit of the subject's interpretation of the writer's purpose for writing this article, although the subject uses the same strategy--**interpretation of the text content.**

As a result of discussion with the supervisory committee members, it was agreed that an appropriate method to divide the TOL protocols into units in order to analyze the data in this research was to use the idea unit. The idea unit, according to Pereira (1991), is “a TOL response referring to a single concept, idea, or feature in the text” (p. 54). For example:

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

Umm, this is probably what I just said that the people in the developing countries started to have an eating habit like the Americans. I used to read an article saying that the American people used to eat hamburgers. That is [they] had preferred to eat not very healthy diet for a long time. Now they have changed their habit by starting to eat healthy foods.

(Kathy 7)

This utterance indicates that there are two central ideas. The first idea is the student’s confirmation of her previous statement about the people in the developing countries imitating the eating habit of the American people.

The latter is an article about the changing diet in America. Therefore, this single think-aloud utterance is divided into two different idea units.

Another example of dividing the statement into idea units is:

Text (sentence 6): *These changes have played a significant role in the epidemic of such chronic ailments as cardiovascular diseases and cancer, which have become the leading causes of premature death in the developed world.*

Subject:

That means that the action of eating--I mean our action has influenced on us whether we can get heart disease and cancer or not. And also the writer wants us to think of ourselves, to go back to ourselves and think carefully by the text that we are like that or not. (Tara)

This think-aloud utterance shows that there are two main ideas. The first one is our diet determines our health and the second one is the subject's interpretation of the writer's message for readers to compare their own diet with the diet mentioned in the text. Therefore, it is legitimate to divide this protocol into two idea units.

As mentioned earlier, the analysis emerges from the data itself without any imposition of the predetermined coding upon the data. Therefore, the

whole protocol of each subject was carefully divided into idea units from the first statement to the last statement.

Categorization of Strategies

One of the purposes of this study was to see how Thai undergraduate students monitored their comprehension as they read an English text, what types of strategies they used in comprehending the text and how they solved their comprehension problems. A *strategy* refers to any type of action initiated by the subject in order to understand the text or reach the goal of understanding. According to van Dijk and Kintsch (1983), a strategy is “the idea of an agent about the best way to act in order to reach a goal” (pp. 64-65). A number of reading behaviours or actions taken by the subjects in order to comprehend the text were perceived by the researcher. These actions or behaviours demonstrated by the subjects were called strategies. In order to maintain the character of the data, each strategy will evolve from the data in the protocol and will not be based upon predetermined categories already established in the literature.

Each idea unit was reviewed in order to identify types of strategies. Each strategy was then categorized. Many times, the TOL statements revealed that subjects talked about the same topic or the same main idea but demonstrated more than one behaviour or strategy. For example:

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

“Oh, I understand but I’m not sure whether it’s true or not.”

(Tara 7)

This utterance shows that there are two different strategies being used by the subject although it refers to the same idea or topic. The first strategy was categorized as **assessing one’s understanding**. In this example, the subject expressed her understanding of this particular segment of the text. In the latter part, she said that she was not sure whether it was true or not, indicating a different type of strategy. This strategy is named **reaction to the text content and to world knowledge**. The subject interacted with the text by stating her uncertainty about whether the information was true.

In this stage of the analysis, the utterance was then divided into a segment which contains a single main idea and a single strategy. This is named a *segment*. Therefore, a segment consists of an utterance of one single main idea, or topic, or theme as well as one single strategy.

As a result of this last division of the protocol, three patterns of segments emerge:

1. A segment containing different ideas, topics, or themes and different strategies. An example:

Text (sentence 30): *Such a diet is very close to the actual diet in many developing countries.*

Subject:

This is like the diet which is an ideal diet... healthy diet has a lot of similarity to the diet in many developing countries.

This shows that the West is not always smart. (Juti 30)

This utterance demonstrates that the central theme of the first part is the similarity of the healthy diet to the diet in developing countries and the strategy being used here is **rephrasing**. The central theme of the latter part is the assessment of the intelligence level of the West and the strategy being used here is **interpretation of the text content**.

2. A segment containing different ideas, topics, or themes but with the same strategies. An example:

Text (sentence 26): *For most individuals, this means eating less animal fat in all its forms like butter, processed food and so on.*

Subject:

Like when I saw in England, there's a lot... like low fat butter. There is *skimmed milk*, *semi-skimmed milk* or *whole milk*, something like that. They are trying to support... they are trying to give us an option in choosing low fat [products] that they produce. (Sulalai 26)

This utterance contains two different idea units but the same strategies. The first part contains the idea of low fat dairy products in England while the second part talks about the English government's support of the low fat products. However, the strategies demonstrated in these two parts of the utterance are the same--that is of **world knowledge**.

3. A segment containing the same idea, topic, or theme but with different strategies. An example:

Text (sentence 13): *The development of hypertension, which puts the individual at risk of strokes as well as heart attacks, is very closely related to such dietary factors as obesity, high sodium intake and heavy alcohol drinking.*

Subject:

Strokes... strokes... umm... I'm not sure what it means. It probably means like chest pain... something like having a

heart disease... like a slight recurrence... like having a chest pain... not to the point of heart attack. (Sulalai 13)

This utterance reveals that both parts contain the same idea--that is the meaning of the word *strokes*. However, the strategy employed by the subject in the first part is **expressing confusion (content and vocabulary)** while the second strategy is **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)**.

Strategies. The protocols of the 16 subjects who participated in this study revealed strategic behaviours or actions demonstrated by the subjects while reading to understand the text and to solve comprehension problems. These strategic behaviours are called strategies. Twenty-eight strategies were identified in this study. They are:

1. translation,
2. rephrasing,
3. summarization,
4. interpretation of the text content,
5. reaction to the text content and to world knowledge,
6. world knowledge,
7. association,

8. questioning information in the text/noting discrepancies in the text/questioning world knowledge,
9. monitoring comprehension,
10. assessing one's understanding,
11. self-affirmation,
12. confirming comprehension,
13. correcting one's own earlier hypothesis/assumption/ understanding (including vocabulary),
14. rereading,
15. expressing confusion (content and vocabulary),
16. expressing intention to return to an earlier part of the text,
17. expressing intention to keep on reading in spite of confusion,
18. giving instructions to oneself/asking and answering one's own question,
19. wait/stop/slow down,
20. expressing intention to use the glossary,
21. consulting the glossary,
22. knowledge of grammatical structure and text organization,
23. comments/suggestions on grammatical structure and text organization,
24. pronunciation and spelling,

25. identifying vocabulary,
26. comments on vocabulary,
27. identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings), and
28. comments on illustrations.

Categories. After all strategies detected in this study were collected, the next step was to arrange them into *categories*. The protocols showed a number of strategies used by the subjects. However, the arrangement of these strategies into categories was an attempt by the researcher to group certain strategies together by focusing on similarities of functional purposes in the employment of these strategies. The purpose of arranging the strategies into categories by the researcher was to try to look at reasons or purposes behind those strategies and to group them accordingly. The 28 strategies were grouped into six categories:

1. understanding the meaning of the text,
2. rationalization,
3. interaction with the text,
4. enquiring clarification,
5. comprehension monitoring, and
6. text structure and vocabulary.

The analysis of the strategies and categories will be discussed in greater detail in the next chapter.

Inter-rater Reliability

Four think-aloud extracts were randomly selected by the researcher for the purpose of inter-rater reliability. These extracts were those of Kathy, Wattana, Tara, and Nirand. In order to check the consistency and reliability of the coding by the researcher, these four randomly selected extracts were submitted to three independent raters. The strategies identified in the four extracts were precoded by the researcher. The three independent raters were asked to read the protocols and code the strategies in the protocols. The purpose of the coding by three independent raters was to demonstrate whether the strategies detected by the researcher also represented the same perception by outsiders.

First, all three raters received a set of materials containing definitions and examples of strategies. These materials were separate from the extracts to be coded by the raters. The researcher explained each strategy definition. The raters were encouraged to ask questions about unclear issues. After the explanation, the raters received four extracts to be coded.

The raters were told to read the first paragraph only without coding and to start the coding from the second paragraph. Each rater coded independently. The researcher answered any questions raised during this meeting. The meeting lasted approximately 2 hours.

The researcher received the coding from the raters 3 days after the meeting. The coding was then calculated to find reliability. Inter-rater reliability is presented in Table 2.

All strategies identified in each of the four extracts selected represent 100%. The percentages of inter-rater reliability in Table 2 signify the extent of agreement of the coding of strategies between the raters and the researcher.

For rater 1, the agreement of the coding of strategies was 98.5% in Kathy's extract, 93.9% in Wattana's extract, 96.7% in Tara's extract, and 98.4% in Nirand's extract. The total means for the four extracts' coding for rater 1 was 96.8%.

For rater 2, the agreement of the coding of strategies was 97.1% in Kathy's extract, 90.5% in Wattana's extract, 94.5% in Tara's extract, and 95.3% in Nirand's extract. The total means for the four extracts' coding for rater 2 was 94.3%

For rater 3, the agreement of the coding of strategies was 98.5% in Kathy's extract, 90.5% in Wattana's extract, 97.8% in Tara's extract, and

90.6% in Nirand's extract. The total means for the four extracts' coding for rater 3 was 94.3%.

For all three raters, the means of the interrater reliability was 98.0% in Kathy's extract, 91.6% in Wattana's extract, 96.3% in Tara's extract, and 94.7% in Nirand's extract.

Table 2**Inter-rater Reliability**

	Kathy	Wattana	Tara	Nirand
Rater 1	98.5%	93.9%	96.7%	98.4%
Rater 2	97.1%	90.5%	94.5%	95.3%
Rater 3	98.5%	90.5%	97.8%	90.6%

Means

	Kathy	Wattana	Tara	Nirand
All raters	98%	91.6%	96.3%	94.7%

Means

Rater 1	96.8%
Rater 2	94.3%
Rater 3	94.3%

CHAPTER FIVE

Discussion of the Findings

This chapter is divided into three parts and each related to a research statement. The study seeks to:

1. describe the comprehension monitoring strategies reported through the think-aloud technique by Thai EFL undergraduate students at Chulalongkorn University with good academic performance while reading an English expository text;
2. compare the use of comprehension monitoring strategies by proficiency levels as determined by the TOEFL scores and academic records; and
3. compare the use of comprehension monitoring strategies between the subjects in the second and fourth year.

Discussion of the First Research Statement:

Descriptions of Comprehension Monitoring Strategies

This section describes the 28 comprehension monitoring strategies identified in this study under six categories according to their functional purposes.

How do Thai undergraduate students monitor their understanding and thinking process when reading an English expository text? The TOL verbal reports of the 16 subjects participating in this study revealed that they exhibited a variety of reading behaviours in monitoring their understanding of the article being read. Twenty-eight comprehension monitoring strategies were identified in this research. The 28 strategies were classified into six categories according to their functional purposes. Note that the *italic bold font* represents the name of the categories, the **normal bold font** represents the name of the strategies, and the underlined statements in the examples indicate remarks made by the subjects. Table 3 shows the 28 strategies identified in this study and the frequency of the use of these strategies by the subjects. Figure 1 shows the 16 subjects' uses of their strategies.

Category 1. Understanding the Meaning of the Text

Understanding the meaning of the text incorporates the strategies of (a) **translation**, (b) **rephrasing**, and (c) **summarization**. The functional purpose of these strategies employed by the reader is to understand the meaning of the text. It demonstrates that after reading a segment or segments of the text, the reader takes an action or actions in trying to decode or understand the meaning of the information read or

Table 3**The Frequency of the 28 Strategies Used by the 16 Subjects**

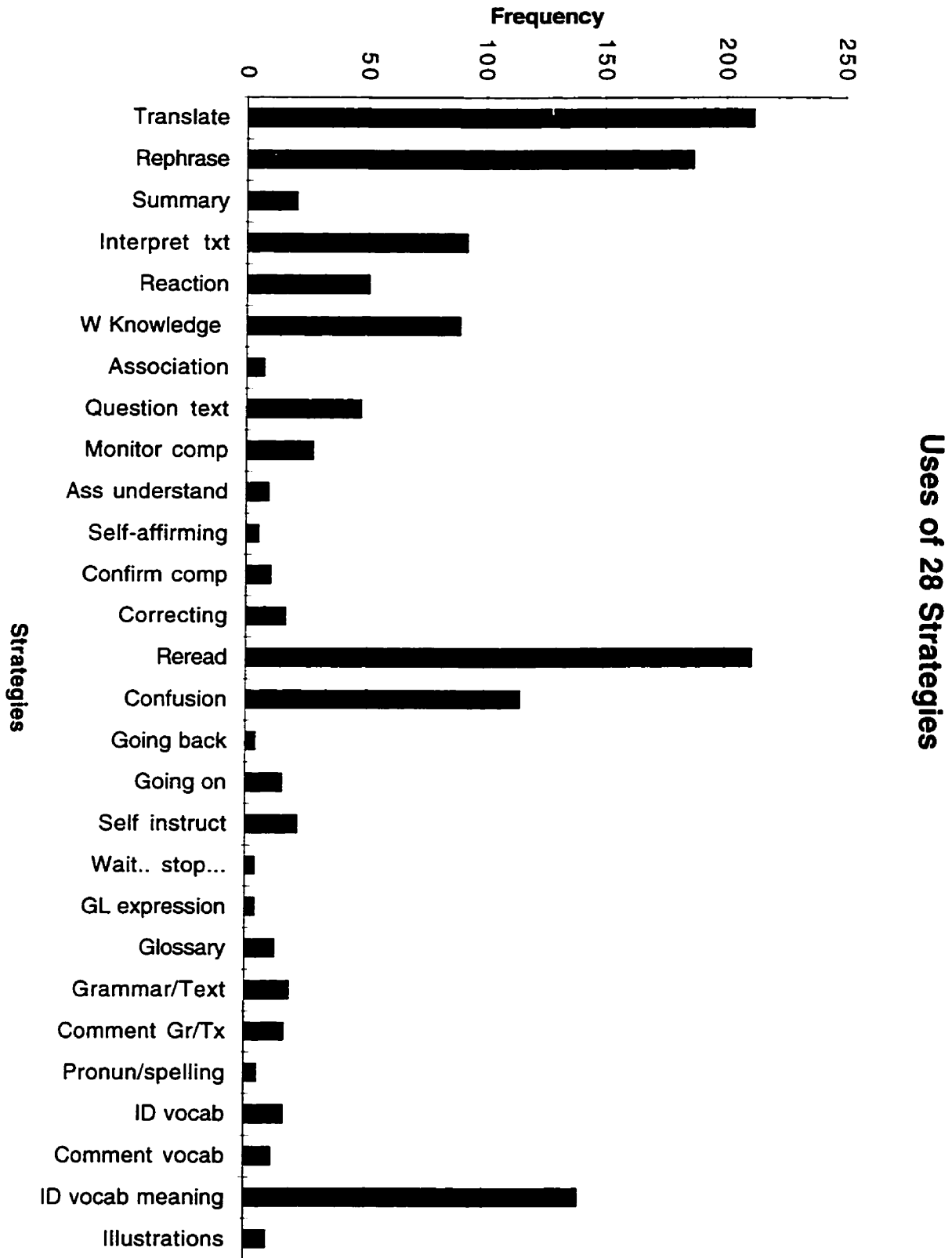
subjects	Ka thy	Siri aree	Wat ta na	Su la lai	Ju ti	Ta rin	Ta ra	Ni ran	Pit cha ya	Ani ta	Pim	San dee	tani ta	Cha na	Pat si ri	Ya jit
Strategies																
translation	23		24	25	28	31		80	136	28	18	55	52	18	123	60
rephrasing	35	7	13	31	14	26	37	23	69	13	33	19	40	10	32	30
summariza tion		1	6	2			10	1	1		1	8	3	11	10	2
interpret of text	12	7	9	8	14	1	32	9	9	3	8	8	14	11	8	1
react to text &to W Kn *	12	18	10		2		5	3			6	8	4			
world knowledge	43	4	9	6	4		17	6	4		3	14	2	3		1
association	1	5	1								2					
question text & W kn	14	6	12	1	4		9	1	5	1	3	13	3	5	4	3
monitoring comprehen	2		13		1		9	2			2	1	4	9	1	2
assess understand			3	4			2		1	1				3	2	5
self- affirming	1			2	2				3	3						
confirm compre	3		2	4			1							1	2	
correcting (inc. vocab)		3	4	7			1	1	8			1	3	2	7	1
rereading	17	11	46	21	4	44	36	22	260	46	44	16	67	28	76	112
confusion (inc. vocab)	12	10	26	35	10	2	7	13	24	17	19	8	12	31	47	9
going back			4								1		6	2	8	5
going on		1	3	2	1	1	6	1		11	2		10	13	19	7
instr. talk. answer self		1	19		1					1	1		8		10	

subjects	Ka thy	Siri aree	Wat ta na	Su la lai	Ju ti	Ta rin	Ta ra	Ni ran	Pit cha ya	Ani ta	Pim	San dee	tani ta	Cha na	Pat si ri	Ya jit
Strategies																
wait.. stop.. slow down			2		1			1		4	9			1		6
expressing using GL			1	2		1						1	1	1		11
glossary		1		2		9						8	4	1		8
grammar/Tx org Kn *		1	9		2	3	3		4				4	3	10	10
comments Gr/Tx org			12		1		3		1	1	1					1
pronun/ spelling		2	2				1		3	4			2		1	1
identifying vocab	2	1	3	5	1		3	1	13				1	7	9	
comments/qu estion vocab		2	7	1	1				1	2		1	4	6	1	2
ID & hypo meaning voc	14	18	20	23	17	12	19	17	49	2	7	9	25	15	48	19
comments on illustrations		1					1		1		3	1	2			

Note.

1. W Kn = world knowledge
2. Tx Org Kn = text organization knowledge
3. Gr = grammar
4. Id = identifying

Figure 1. The 16 Subjects' Uses of the Strategies



decipher what the text means. This category focuses on information in the text and how the reader understands it. The reader may translate from the English segment to Thai (which also includes code-mixing translation), may rephrase what the text says (which also includes code-mixing rephrasing), or at some point may summarize certain segments of the text in order to understand the meaning of the text.

1a. **Translation**. A translation from English to Thai. It is a common strategy readers employed, after reading the English text, to decode the meaning in English by verbatim translating a segment in the text to Thai. The information in Thai states what is said in English. However, the reader may leave out some information in English and not translate it (ellipsis translation). The translation represents what the text says in English. The reader may also use code-mixing translation (both English and Thai). Code-mixing/code-switching is common among bilinguals. Bentahila and Davies (1995) define code-switching in their article as “the process whereby speakers move from one language to another either within a single utterance or between one utterance and the next in the same interaction (in contrast to cases where speakers may use one language in some situations and another in others)” (p. 75). Erickson (1985) refers to code-mixing/code-switching in situations where speakers “‘mix’ vocabulary or syntactic forms within the same utterance or ‘switch’ codes (languages

or dialects) within the same communicative event” (p. 6). Legenhausen (1991) also refers to code-switching as a discourse strategy where bilinguals, in order to emphasize, focus, or clarify, very often repeat, elaborate, or explain an earlier utterance in the other language. This strategy was used by almost every subject at a high frequency. Only 2 subjects in the higher proficiency level did not use this strategy.

Examples of **translation**:

Text (sentence 8): *Indeed, cardiovascular diseases, cancer and accidents are the three main causes of death of the age group 15 to 64 in both developed and developing countries.*

Subject:

Cardiovascular diseases, cancer and accidents are the three important causes of death between the age group fifteen to sixty-four in both developed and developing countries.

(Tarin 8)

Rationale: This utterance demonstrates that what the subject did was translate the English text to Thai. Although the subject did not translate all information from the text (the subject excluded the word ‘indeed’), she basically repeated the text word for word.

Text (sentence 2): *Comparison between this diet and the current United States diet, for example, shows great differences in protein, fat, sodium, potassium and calorie intake.*

Subject:

Comparison between this diet and the current United States ..
Comparison between this consumption and the current United States that is the present of America. For example. For example. (Patsiri 2)

Rationale: The subject read a segment in the text “*Comparison between this diet and the current United States...*,” did a code-mixing translation “comparison between this consumption and *the current United States* that is the present of America,” continued reading another segment “*for example,*” and did a translation in Thai as “for example.”

Text (sentence 4): *Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America and only very recently in other areas.*

Subject:

Biologically, human beings have too little time to adapt to rapid changes in food? (Juti 4)

1b. **Rephrasing**. A strategy used to decode the meaning of the content of the text by rephrasing the segment of the text in the reader's own words, but representing or maintaining the same meaning or idea. The reader may do a code-mixing (both English and Thai) rephrasing. The reader may also include additional information which was stated earlier (elaborating the present information). The strategy may be in the form of a a sentence, a clause or a phrase. Although **rephrasing** and **translation** indicate what the text says, **rephrasing** represents a more advanced interpretation of the text. The reader relays the meaning of the text in his or her own words and very often makes an elaboration of the information to make it more understandable, although the reader still maintains the overall meaning of the text. This strategy was used by every subject at a high frequency.

Examples of **rephrasing**:

Text (sentence 23): *It is none too soon for many developing countries to take similar action.*

Subject:

It is time for us... for developing countries to go back and do the same thing as the developed countries. (Kathy 23)

Rationale: The subject used her own words, rephrasing '*It is none too soon for many developing countries*' as "It is time for us... for developing countries," and rephrasing '*to take similar action*' as "to go back and do the same thing as the developed countries."

Text (sentence 22): *In accordance with existing disease pattern and scientific knowledge, developed countries have started to set national guidelines for healthy nutrition, with the special aim of preventing and controlling chronic diseases.*

Subject:

With the knowledge and the occurrence of diseases, they knew what causes diseases, and together with the knowledge of scientists, they then set *national guidance* about healthy diet in order to control and prevent chronic diseases.

(Tarin 22)

Rationale: The subject rephrased '*in accordance with existing disease pattern and scientific knowledge*' as "with the knowledge and the occurrence of diseases, they knew what causes diseases, and together with the knowledge of scientists," and rephrased '*developed countries have started to set national guidelines for healthy nutrition, with the special aim of preventing and controlling chronic diseases*' as "they then set *national*

guidance about healthy diet in order to control and prevent chronic diseases” (code-mixing).

Text (sentence 10): *Nutritional excess in parallel with nutritional deficiencies (for instance iodine or iron) became a focus of research.*

Subject:

Receiving too much nutrition and receiving too little nutrition, something like that, right, such as iodine or iron?

(Wattana 10)

Rationale: Although there is some uncertainty in the statement, it indicates that the subject rephrased what the text says.

1c. **Summarization.** The reader summarizes a segment of the text. This strategy usually occurs when the reader reads a part of the text (i.e. a paragraph, ongoing sentences), engages in some strategies (i.e. identifying meaning of vocabulary, rephrasing, world knowledge), and then sums up what the text has said so far. Three subjects in the higher proficiency group and one in the lower proficiency group did not use this strategy at all. Of 12 subjects who employed this strategy, 7 used it at a low frequency of 1-3. The subjects in the lower proficiency group used this

strategy at a greater frequency than the subjects in the higher proficiency group.

Examples of **summarization**:

Subject:

From what I have read so far, this is about... it is mainly about food... food which has effects on our body. At the beginning, it talks about the effects that some diseases are caused by our behaviours as well as food. But it refers mainly to food. (Nirand)

Rationale: The subject summed up what has been read thus far.

Subject:

From the first paragraph, the writer wants us to realize that... to give us a point that all food that we eat nowadays in America is different from the past, and that can cause us the problem due to too much protein and animal fats. And that's not good at all for our body. (Tara)

Rationale: The subject summarized what she had read from the first paragraph until now.

Subject:

The summary of what has been said so far is that they talk about consumption of people four thousand years ago until the present time how they have changed their way of consumption. (Patsiri)

Rationale: The subject summarized what had been read from the first to the fourth sentence.

Category 2. Rationalization

The category of *rationalization* of the text includes the strategy of **interpretation of the text content** (which also includes any interpretation on the author) which covers the reader (a) forming a hypothesis of the content of the text, (b) drawing a conclusion from the content of the text, (c) making an inference of the content of the text, and (d) making a prediction of the content of the text. The category of *rationalization* of the text demonstrates that the reader explores the meaning of what the text says by seeking to go beyond the surface meaning of the content so that the meaning would make sense to him or her. The interpretation of each reader is individual and unique because each reader possesses different background knowledge and theories to fit his or her own interpretation.

Interpretation of the text content. The reader forms a hypothesis, draws a conclusion, makes an inference, makes a prediction, or makes an assumption about the content of the text, including any interpretation related to the author of the article or the illustrations in the text. This strategy demonstrates the ability of the reader, after reading a segment of the text, to go beyond the information in the text and make the move to interpret the text. Every subject used this strategy. The subjects in the higher proficiency group used it more frequently than the subjects in the lower proficiency group.

Examples of **interpretation of the text content**:

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

This probably means that actually, these diseases are quite serious... are quite serious in the developing world. But in the developing world, communicable diseases appear to be more serious. I think that's what it means. Because in the developing world, the death rate should be higher because the public health system or other types of system of the

developing countries are still not good, resulting in similar death rate between communicable diseases and chronic diseases, or perhaps the rate of communicable diseases may be higher. I think that's what it means. (Juti 7)

Rationale: The text only tells readers that although these chronic diseases are becoming a serious problem in the developing world, communicable diseases may appear to be more serious. However, the subject drew a conclusion or hypothesized (the underlined utterance) that the reasons why communicable diseases appear to be high in developing countries were due to the fact that the public health system and other types of infrastructure in this part of the world were not efficient, which in turn could cause the rate of communicable diseases to be high.

Text (sentence 14): *Obesity, one of the most common health disorders in the developed world, is also related to the onset of diabetes mellitus.*

Subject:

The world has developed and people don't have time to cook. So, food that we eat have a lot of fats which are causes of fat clogging the artery, which makes people die. (Tanita 14)

Rationale: In this example, the subject tried to rationalize why a number of people have health problems by forming a hypothesis that, because the world has moved so rapidly, people don't have time to take care of themselves, i.e., don't have time to cook, and therefore, grab anything that they can eat such as fast food, which contains a lot of fat, and this action, therefore, leads to health problems such as arterosclerosis, which is a cause of death.

Text (sentence 15 and sentence 16): *It has been estimated that 35 per cent of cancers are associated with diet. Excess fat intake has been linked to an increased incidence of cancers of the breast and colon, while food preservation techniques (for instance salting) have been associated with stomach cancer.*

Subject:

Considering an earlier sentence [sentence 15], I think that dieting is associated with the percentage of cancer. And stomach cancer is probably a result of dieting. Right now, I started to think that being on a diet might cause us to not eat on time, resulting in a stomach disease, which in turn leads to stomach cancer. (Chana 16)

Rationale: The subject (still) misunderstood that the word *diet* in the text meant being on a diet or dieting. The text says that cancers are associated with diet. The subject is, therefore, trying to rationalize or search for a reason why cancers are associated with dieting (from the subject's own understanding).

Category 3. Interaction with the Text

This category covers the strategies of (a) **reaction to the text content and to world knowledge**, (b) **world knowledge**, and (c) **association**. The functional purpose of these strategies, which share a similarity to one another, is that the reader is trying to interact with the text by using his or her own background, world knowledge or personal experience to complement additional information, to support information in the text or to react to the text.

3a. Reaction to the text content and to world knowledge.

This strategy is used to react to the text (including the author and the illustrations in the text) after reading a segment of the text. It usually comes in the form of an agreement or disagreement such “I agree... (because...),” or “I don't agree...(because...)” It may also come in a more subtle statement such as “Well, it's not always true.” This strategy demonstrates the reader's interaction with the text or the author by not just

reading the text and decoding the meaning of the surface information in the forms of translating or paraphrasing, but by evaluating the content and reacting to, arguing with and/or criticizing the text, using his or her background knowledge in making a judgement of information in the text. This strategy also includes reactions to the world knowledge, which indicate the reader's reaction to a real life situation, which is demonstrated by the reader's opinions and comments on such a situation. This strategy is a by-product of information in the text. That is, information in the text triggers the reader to interact with a real life situation, using his or her own background or world knowledge. By doing so, the reader sometimes comments on or criticizes a situation which is part of that world knowledge. This strategy was used by 6 subjects in the higher proficiency group and only by 3 subjects in the lower proficiency group.

Examples of **reaction to the text content and to world knowledge:**

Text (sentence 4): *Biologically, therefore, people have had little time to adapt to rapid changes.*

Subject:

Two hundred years... little time? (Siri-aree 4)

Rationale: The subject disagreed with the argument of the text which stated that the changes in human being's diet have taken place during the last two

centuries and as a result, human beings have had little time to adapt to these rapid changes. In her point of view, two hundred years of changes in food was not *little time*. Two hundred years, in her opinion, was quite a long time for human beings to adapt to these changes in our diet.

Text (sentence 24): *Conceivably, the least developed countries may still be in a position to inhibit the development, among the whole population, of those harmful lifestyles which have evolved during recent decades in the developed world - lifestyles which are now taking a great toll in terms of human suffering and economic costs.*

Subject:

Well, I'm going to have to question this part about economic costs. O.K. It might be true that we waste our money because of health problems. But if we consider the marketing aspects, then it might not be true. It's like *perfect market*. If there is a demand, then there is a supply. And if we talk about *[an apple a day], keep the doctor away*, then there is no work left for doctors to do, which I think is still difficult. (Siri-aree 24)

Rationale: The subject did not totally agree with the text with regard to the serious effect of harmful lifestyles on economic costs and hence rendered arguments to support her reason. She also made another argument with regard to an illustration which told people to eat healthy food so that they would stay healthy and did not need to see a doctor.

Text (sentence 20): *Yet in spite of its possible favourable effects when taken in moderation, excess drinking increases the risk of traffic accidents, is associated with liver cirrhosis and is a source of other health and social problems.*

Subject:

Drinking a lot could cause accidents. Like right now there are campaigns. There is a commercial which shows [two] glasses [containing alcohol] symbolizing [two] cars. Then, they start to drink little by little and finally the two glasses representing two cars are colliding. I think this is a good commercial. People who drink probably agree with... but then again these people probably don't care anyway.

(Nirand 20)

Rationale: The text talks about the negative effects of alcohol on traffic and health and social problems. The subject then talked about a

commercial in Thailand against drinking. The underlined statement represents the subject's reaction to the real life situation, in this case, a commercial in Thailand which the subject agreed with and another reaction to the people who drank that these people might not really care.

3b. **World knowledge**. The reader uses his or her knowledge of the world, which includes the scope of his or her own world knowledge, personal experience, and textbook knowledge to explain, support, expand, reiterate, and clarify information in the text. Three subjects--one in the higher proficiency group and two in the lower proficiency group--did not employ this strategy. The subjects in the higher proficiency group used the strategy of **world knowledge** at a much greater frequency than the subjects in the lower proficiency group.

Examples of **world knowledge**:

Text (sentence 24): *Conceivably, the least developed countries may still be in a position to inhibit the development, among the whole population, of those harmful lifestyles which have evolved during recent decades in the developed world- lifestyles which are now taking a great toll in terms of human suffering and economic costs.*

Subject:

The population in developed countries may not be able to compete with these people because they have very scary lifestyles such as drinking alcohol, eating junk food, something like that; they may drink too much. The people in the countries which haven't really developed... the least developed countries... may still be eating the same food as the people in the past... as the people of four thousand years ago. I also heard that human beings were born to be vegetarians because their jaws are more suitable to eat vegetables and they separate them from other animals because human beings don't have appropriate teeth to chew food [meat]. (Juti 24)

Rationale: The text talks about the difference between diet in the past and present. The subject expands this particular segment of the text by adding information from his background knowledge about the nature of the human beings in relation to their diet.

Subject:

Back to nature. Back to nature. Now, there are many commercials which tell us to go back to nature because technology is very advanced. They are campaigning a lot

about this issue in order to go back to nature because there have been a lot of damages whether in Thailand or anywhere in the world. (Pitchaya 1)

Rationale: The title of the text is Back to Nature. The subject supports the idea of back to nature by providing additional information of commercials in Thailand which persuade people to go back to nature.

Text (sentence 27): *A healthy diet should contain fruits, vegetables and wholegrain cereals; this situation still prevails in many developing countries.*

Subject:

I heard that according to the diet principle, we should eat a lot of fruits, vegetables, and wholegrain cereals. I also heard that wholegrains are very beneficial to our body. There was an article saying that if we eat regular bread, white bread, it's hardly nutritional. It's only flour. But if we eat wholewheat, wholewheat bread, it has fibre and it is more nutritional. But in Thailand, it's still not popular. People still eat white bread more. (Kathy 27)

Rationale: The subject expanded the topic of a healthy diet by adding information from her own world knowledge about diet which contains fibre.

3c. **Association**. A strategy used to relate the content of the text to the reader's personal life or experience. It occurs when the reader reads a particular piece of information in the text and as a result associates that information with his or her own life and talks about it. Three subjects in the higher proficiency group and one in the lower proficiency group employed this strategy, at a low frequency of 1-5.

Examples of **association**:

Text (sentence 16): *...while food preservation techniques (for instance salting) have been associated with stomach cancer.*

Subject:

So it means that salt must not be good to the health at all because they say that preserving food with salt could cause stomach cancer. Umm... it's kind of scary because I also eat a lot of salt... I like to eat salty food. (Kathy 16)

Rationale: The underlined statement shows that, after reading a segment in the text regarding the link between salting as a preservative technique and

stomach cancer, the subject is associating herself with this information by talking about her own fondness for eating salty food.

Text (sentence 16): *...for instance salting has been associated with stomach cancer.*

Subject:

I guess when I do a lot of studying and eat preservatives [fruits], I certainly will have stomach cancer. (Siri-aree 16)

Rationale: After reading a segment of the text with regard to the relation between salting and stomach cancer, the subject is associating herself with this information by talking about herself.

Text (sentence 16): *...while food preservation techniques (for instance salting) have been associated with stomach cancer.*

Subject:

Well, I'm going to have to be more careful about my diet because it [salting] could cause stomach cancer. (Pim 16)

Rationale: After reading a segment of the text with regard to the relation between salting and stomach cancer, the subject is associating herself with this information by advising herself to be more careful about her diet.

Category 4. Enquiring Clarification

The category of enquiring clarification consists of the strategy of questioning information in the text/noting discrepancies in the text/questioning world knowledge. The functional purpose of this category is that the reader asks for more information in order to clarify some points which are still not clear to him or her or to point out some discrepancy noted in the text. It includes a reading behaviour which shows that the reader makes an observation of a lack of information including a lack of information of world knowledge in the text which otherwise could have made the text more comprehensible to the reader or to gain more world knowledge. It also denotes a strategy when the reader questions the world knowledge due to the fact that the reader lacks that particular piece of background knowledge. This category also covers remarks by the reader as the reader observes some discrepancy of information noted in the text.

Questioning information in the text/Noting discrepancies in the text/Questioning world knowledge. This strategy is used to question the truthfulness of information in the text. The strategy occurs when the subject has some doubt about text content, when the subject finds that the text does not provide enough information, or when the subject thinks that there is some discrepancy about what the text says. In addition, this strategy sometimes results from the reader's lack of a particular world

knowledge combined with inadequate information provided by the author. The strategy also includes the questioning of information related to general world knowledge which is a result of the reader's lack of particular world knowledge or insufficient knowledge of the world. Specific information in the text usually initiates this strategy which causes the reader to make an inquiry. This strategy may be in the form of an interrogative question, an indirect question or a statement. Of all 16 subjects participating in this research, only one subject in the higher proficiency group did not use this strategy.

Examples of questioning information in the text/noting discrepancies in the text/questioning world knowledge:

Text (sentence 20): *Yet in spite of its possible favourable effects when taken in moderation, excess drinking increases the risk of traffic accidents, is associated with liver cirrhosis and is a source of other health and social problems.*

Subject:

A thought came to my mind just now that... well... what's this got to do with it? First I read about diet. Now, it's going to be about drinking alcohol while driving? I don't know... (Patsiri 20)

Rationale: Patsiri made an observation of the author with regard to one piece of information in the text--drinking alcohol while driving. The subject observed that the theme of the text was about diet. However, she observed that now the text was talking about drinking alcohol while driving, which, in her point of view, was not really related to the rest of the text content.

Text (sentence 13): *The development of hypertension, which puts the individual at risk of strokes as well as heart attacks, is very closely related to such dietary factors as obesity, high sodium intake and heavy alcohol drinking.*

(sentence 14): *Obesity, one of the most common health disorders in the developed world, is also related to the onset of diabetes mellitus.*

Subject:

They say that this thing is also related to diabetes... this obesity... right? And... umm... but... wait... They say that stress, which puts people at risk of strokes or heart attacks, is related to dietary factors such as *obesity, high sodium intake, and heavy alcohol drinking*. Therefore, obesity should be one of the dietary factors. But they say it is a common health deficiency and is also related to diabetes. (Kathy 14)

Rationale: The text says that hypertension is closely related to dietary factors such as obesity, high sodium intake, and heavy alcohol drinking. The text then says that obesity is one of the most common health disorders and is also related to diabetes. The subject observes that high sodium intake and heavy alcohol drinking are appropriately considered to be dietary factors which could cause hypertension ('stress,' in the student's point of view). However, obesity does not seem to fit in the category of dietary factors. Besides, the text also states that obesity is one of the common health disorders related to diabetes. Therefore, in the subject's point of view, there is some discrepancy in information in the text with regard to obesity. While the text says that obesity is one of the most common health disorders, it also says that it is one of the dietary factors. That is why the subject makes an observation here with regard to the actual role of obesity.

Text (sentence 21): *In addition, the high calorie content of alcohol contributes to excess body weight.*

Subject:

I'm not sure because I see most drinkers are skinny... very skinny. Or could it be because they don't eat properly, they mainly drink alcohol...? I'm not sure. (Kathy 21)

Rationale: The text said that alcohol could cause people to have excess body weight. The subject did not quite agree with this information. She said that most drinkers whom she knew were skinny. In addition, she questioned her own world knowledge that perhaps skinny drinkers whom she knew may mainly drink alcohol and may not eat properly.

Text (sentence 4): *Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America and only very recently in other areas.*

Subject:

I want to know that, at the beginning, who initiated the eating of hamburgers. (Siri-area 4)

Rationale: Information in the text triggers the subject to ask a question of world knowledge, that is--who was the first person who created hamburgers?

Category 5. Comprehension Monitoring

The category of comprehension monitoring includes the strategies of (a) **monitoring comprehension**, (b) **assessing one's understanding**, (c) **self-affirmation**, (d) **confirming comprehension**, (e) **correcting one's earlier hypothesis/assumption/understanding (including**

vocabulary), (f) rereading, (g) expressing confusion (content and vocabulary), (h) expressing intention to return to earlier part of the text, (i) expressing intention to keep on reading in spite of confusion, (j) giving instructions to oneself/asking and answering one's own question, (k) wait/stop/slow down, (l) expressing intention to use the glossary, and (m) consulting the glossary.

The functional purpose of this category is that the reader demonstrates one's comprehension monitoring strategies. It covers strategies which deal with the reader's awareness or consciousness of his or her level of understanding (understanding, confusion, incomprehension, misunderstanding) of information in the text. It also shows the reader's ability to follow his or her own thoughts or understanding while reading and the ability to correct a misunderstanding or misinterpretation.

5a. **Monitoring comprehension.** This strategy occurs when the reader follows up his or her thought of the text content. It usually reflects the combination of earlier information and present information. This strategy was used by 11 subjects and 7 of them used it at a low frequency of 1-3.

Examples of monitoring comprehension:

Subject:

The diet should not contain much salt... Again, salt! They emphasize again that the diet... the food we eat... should not have much salt. (Tara 28)

Subject:

Oh yes! They said '*Back to Nature.*' That is, to go back and eat what we used to eat--that is eating plants, vegetables, and small animals, something like that. (Kathy 23)

Subject:

They said before that food which has salt, preservative foods are not good. Here they emphasize again that the food which has a lot of salt is not good. (Nirand 28)

5b. **Assessing one's understanding.** The reader assesses his or her understanding of the content of the text as well as vocabulary and idiomatic expressions. Eight subjects used this strategy at a low frequency of 1-5.

Examples of **assessing one's understanding**:

Subject:

I can't make an exact translation.. but I think I understand that... (Sulalai 20)

Subject:

I think I kind of get the general idea. (Yajit 14)

5c. **Self-affirmation**. The strategy used to make an affirmation of the reader's earlier statement or interpretation. This strategy occurs immediately after an earlier statement or interpretation. Five subjects used this strategy at a very low frequency of 1-3.

Examples of **self-affirmation**:

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

In developing countries, the death rate might be higher because the public health system and other types of system of developing countries are still not good, resulting in similar

death rate between communicable diseases and chronic diseases, or perhaps the death rate of communicable diseases may be higher. I think that's what it means. (Juti 7)

Text (sentence 6): *These changes have played a significant role in the epidemic of such chronic ailments as cardiovascular diseases and cancer, which have become the leading causes of premature death in the developed world.*

Subject:

This is probably about the changes to eat foods which easily cause diseases such as cancer, something like that in developed countries. I think that's what it means. (Anita 6)

5d. **Confirming comprehension.** The strategy used in order to confirm an earlier statement or interpretation. This strategy occurs after the reader makes some kind of statement or interpretation, then later confirms his or her own earlier statement. Confirming comprehension is a delayed reference to an earlier statement.

Examples of **confirming comprehension**:

Subject:

So that is true when I said earlier that drinking a little of alcohol, for example two glasses a week, will prevent heart disease. (Kathy 20)

Subject:

As I said before, in Switzerland and in Germany, they drink beer and umm... wine, something like this. (Tara 19)

5e. **Correcting one's own earlier hypothesis/assumption/understanding (including vocabulary)**. This strategy is used by the reader to correct his or her earlier statement of hypothesis, assumption, or understanding. This strategy occurs after the reader produces a statement, then after gaining more information from the text, observes that his or her earlier interpretation was incorrect, and then makes changes accordingly. This strategy also includes a correction of vocabulary.

Examples of **correcting one's own former/earlier hypothesis/assumption/understanding (including vocabulary)**.

Subject:

Oh, I know, I know, I know! This sentence probably means that even though drinking alcohol has some good effect when

drinking moderately. That's right. So, what I previously thought was completely wrong. (Sulalai 20)

Text (sentence 14): *Obesity, one of most common health disorders in the developed world, is also related to the onset of diabetes mellitus.*

Subject:

Obesity, which I thought wasn't important and which I don't know the meaning, is actually important. (Patsiri 14)

Subject:

Only very recently in other areas. Umm, I don't know.

Other areas... Oh, I know! First I thought it was about diet.

But in fact, other areas are probably not in Europe...

probably are Asia or Africa. (Sulalai 4)

5f. **Rereading.** The reader rereads part of the text. This includes rereading a phrase, a clause, a sentence, or sentences. This strategy may reflect the reader's confusion or incomprehension of the present information. It may also be an indication of the reader's loss of connection with the present information and that the reader has to go back to a certain part of the text to refresh the memory. This strategy was used by every

subject and had a very high occurrence rate, particularly in the lower proficiency group.

Examples of **rereading**:

Text (sentence 4): *Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America and only very recently in other areas.*

Subject:

Umm... Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America... Well, *biologically* is probably related to nature, something like that because *biology* is about life... about biology, something like that. Therefore, people... like... have little time to adapt to food which has been changed... having little time to adapt that is having to adapt very quickly. *And only very recently in other areas.* Huh... this sounds strange! Only very recently in other areas. Umm... I don't know. (Sulalai 4)

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

The same chronic diseases are also becoming a serious problem in developing countries. The same chronic disease that we can get it for a long time and is not easy to stop or to get better. If we get this chronic disease, we may have this until we die or for a long period of time. *The same chronic diseases are also becoming a serious problem in developing countries.* It shows that not only developed country has this problem, but also in developing country. (Tara 7)

Text (sentence 9): *By the late 1950s, the idea took hold that some chronic diseases, in whole or in part, might be of nutritional origin.*

Subject:

By the late 1950s, the idea took hold that some chronic diseases in whole or in part. The idea took hold that some chronic diseases, in whole or in part, might be of nutritional origin. Ooh, very complex. Might be of nutritional origin. Umm.. might be of... Pass. (Tara 9)

5g. Expressing confusion (content and vocabulary). This strategy is used when the reader does not understand the content of the text

or vocabulary in the text. This strategy was employed by all subjects at a moderate frequency.

Examples of **expressing confusion (content and vocabulary)**:

Subject:

Comparison between this diet and the current United States diet, for example, shows great differences in protein.

Umm... I still don't understand. Let's skip it. (Anita 2)

Subject:

Obesity is the most health disorders in the developed world, which is related to... I don't understand onset. Wow! Of diabetes mellitus... I don't understand at all. Let's skip it.

(Juti 14)

5h. **Expressing intention to return to earlier part of the text.**

The statement expressed by the reader to go back to read certain parts of the text. This strategy is used in order to freshen the reader's memory or when the reader is experiencing a comprehension problem. This strategy was used by only one subject in the higher proficiency group and by 5 subjects in the lower proficiency group.

Examples of **expressing intention to return to earlier part of the text:**

Subject:

The sentence is very long. I'm going to have to read it again.

(Wattana 20)

Subject:

What! One more time. (Yajit 8)

Subject:

Umm... I don't understand this sentence at all. What does it mean? *Might be of nutritional origin.* Why does it have to be *origin*? Let me try again. (Yajit 9)

5i. **Expressing intention to keep on reading in spite of confusion.** A strategy indicating that, although there is some confusion or difficulty in understanding the vocabulary or content, the reader will continue reading and/or hopes that there may be additional information in the next part of the text to clarify the confusion. It also includes a statement which, as a result of confusion, indicates that the reader will not pay attention to what he or she does not understand at that moment and will continue reading. Thirteen subjects employed this strategy.

Examples of **expressing intention to keep on reading in spite of confusion:**

Subject:

Umm... well... these diseases, *in whole or in part*, umm... in whole or in part, may be the result of *nutritional origin*, right? I understand that *origin* means origin. But after reading this, I still don't understand. I will keep on reading.
(Sulalai 9)

Subject:

That's alright. There should be more explanation if I continue reading. (Juti 9)

Subject:

Wait... wait... Let's go to the next sentence. (Chana 4)

5j. **Giving instructions to oneself/asking and answering one's own question.** The reader gives an instruction to oneself during the reading process. It also includes the strategy of asking oneself and answering one's own question. Of 16 subjects, 7 used this strategy; 4 of whom used it only once each.

Examples of **giving instructions to oneself/asking and answering oneself**:

Subject:

Let's see whether I will understand this if I cut the sentence into chunks. (Wattana 20)

Text (sentence 8): *Indeed, cardiovascular diseases, cancer and accidents are the three main causes of death for the age group 15 to 64 in both developed and developing countries.*

Subject:

...Both what? ...Oh, both developed and developing countries. (Tanita 8)

Text (sentence 9): *By the late 1950s, the idea took hold that some chronic diseases, in whole or in part, might be of nutritional origin.*

Subject:

By the late one nine five zero... How many years ago?
(Tanita 9)

5k. **Wait/stop/slow down**. The reader tells himself or herself to slow down as a result of difficulty in understanding the text, confusion or

uncertainty with the content in the material. Seven subjects used this strategy.

Examples of wait/stop/slow down:

Subject:

Biologically, therefore, people have had little time to adapt to rapid changes in food which... Wait! Slow down. (Yajit 4)

Text (sentence 7): *The same chronic disease are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

This shows that they say that it is like some kind of disease which can spread and can cause some serious effects... I think. Wait... (Pim 7)

51. **Expressing intention to use the glossary.** The reader expresses his or her intention to look up the word in the dictionary. The reader may really look it up or may decide not to look it up eventually. Of 16 subjects, 7 used this strategy; 6 of whom used it at a very low frequency of 1-2.

Examples of **expressing intention to use the glossary**:

Subject:

And this composition guarantees that a person gets enough of the vitamins and minerals that are essential for wellbeing.

Well, *composition*... I'd better look it up in the dictionary.

[The subject looked up the word *composition* in the dictionary]. This means that the proportion of good nutrition can guarantee that people receive enough nutrition which are necessary nutrition. *For well being* probably means having a good life, something like that. I'd better look it up again.

[The subject did not look it up]. (Sulalai 31)

5m. **Consulting the glossary**. The strategy used when the reader would like to know the meaning of a vocabulary to clarify some confusion. Seven subjects used this strategy.

Examples of **consulting the glossary**:

Subject:

Osteoporosis [is] a disease of bones. (Patsiri 17)

Category 6. Text Structure and Vocabulary.

This category focuses on text features such as grammar or syntactic structures, spellings and pronunciation, and vocabulary.

6a. **Knowledge of grammatical structure and text organization.**

The strategy related to grammar, structure, or text organization exhibited by the reader in relation to the reader's knowledge of these features. This strategy was used by 11 subjects.

Examples of knowledge of grammatical structure and text organization:

Text (sentence 13): *The development of hypertension, which puts the individual at risk of strokes as well as heart attacks, is very closely related such dietary factors as obesity, high sodium intake and heavy alcohol drinking.*

Subject:

'Which' is a substitution for the development of hypertension.

(Patsiri 13)

Text (sentence 7): *The same chronic diseases are also becoming a serious problem in developing countries - a fact that is hidden by the high prevalence of communicable diseases.*

Subject:

'That' must refer to the diseases which were mentioned in the previous clause. (Patsiri 7)

Subject:

I don't know what *indeed* means. But it must be a kind of conjunction. (Patsiri)

6b. **Comments/Suggestions on grammatical structure and text organization.** The reader makes comments on grammatical structure and text organization. Of 16 subjects, 7 used this strategy; 6 of whom used it at a very low frequency of 1-3.

Examples of **comments/suggestions on grammatical structure and text organization:**

Text (sentence 24): *Conceivably, the least developed countries may still be in a position to inhibit the development, among the whole population, of the developed world - lifestyles which are now taking a great toll in terms of human suffering and economic costs.*

Subject:

Conceivably... What is this? The least developed countries may still be in a position to inhibit the development, among

the whole population, of those harmful lifestyles which...

Wow! Why is it so long! (Anita 24)

Text (sentence 4: *Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America and only very recently in other areas.*

Subject:

Wow! There are many *lys* . (Juti 4)

6c. **Pronunciation/spelling**. The strategy used by the reader related to pronunciation and spelling. Eight subjects used this strategy at low frequency from 1-4.

Examples of **pronunciation/spelling**:

Subject:

A healthy diet becomes even more meaningful if the harmful effects [e`fekts]... effects [i`fekts]... effects [i`fekts]... I remember that the professor used to teach that it's pronounced [i`fekts]. A healthy diet becomes even more meaningful if the harmful effects [i`fekts] of... I don't know whether I pronounced it correctly or not. (Siri-aree 18)

Text (sentence 12): *Excess intake of animal fats is the main cause of elevated serum cholesterol, the main contributor to atherosclerosis and its consequence - heart attack*

Subject:

The main contributor to... Oh! Very difficult to pronounce... atherosclerosis... (Patsiri 12)

6d. **Identifying vocabulary**. The strategy used to identify vocabulary. The reader states that he or she has seen the vocabulary before or that the vocabulary looks familiar. Eleven subjects used this strategy.

Examples of **identifying vocabulary**:

Subject:

Of such chronic... I heard chronic before. (Sulalai 6)

Subject:

Ailments looks familiar. I used to know. But I don't remember what it means. (Sulalai 6)

6e. **Comments on vocabulary**. This strategy is used to comment on particular vocabulary or idiomatic expressions which are difficult or too technical. Eleven subjects used this strategy; 8 of whom used it at a very low frequency of 1-2.

Examples of **comments on vocabulary**:

Subject:

If we expand the discussion still further to other chronic diseases associated with diet such as gallstones, osteoporosis...

Look like medical terms! (Siri-aree 17)

Subject:

Associated with diet such as gallstones, osteoporosis... These are probably all technical terms! (Chana 17)

Subject:

These changes have played a significant role in the epidemic of such chronic... These are difficult vocabularies!

(Tanita 6)

6f. **Identifying meaning and forming hypothesis of meaning of vocabulary (specific and unspecific meanings)**. The strategy used to identify the meaning of vocabulary. The reader may know the meaning or may not be certain of the meaning of the vocabulary identified. This strategy also covers actions taken by the reader to figure out the meaning of vocabulary. The reader somehow identifies its meaning by forming some kind of hypothesis, by linking it with the context and/or the reader's own background, world knowledge, or grammatical knowledge.

The meaning of the vocabulary identified may be specific or unspecific. The meaning identified by the reader is not necessarily accurate. This strategy was employed by every subject at a high frequency.

Example of identifying meaning and forming hypothesis of meaning of vocabulary (specific and unspecific meanings):

Subject:

Occur has the same meaning as *happen*. (Patsiri 4)

Text (sentence 17): *If we expand the discussion still further to other chronic diseases associated with diet such as gallstones, osteoporosis, goitre and dental caries, the picture becomes clearer and more comprehensive*

Subject:

Goitre... This one should be gout because I've heard that people who have gout have to relatively control their diet.
(Kathy 17)

Text (sentence 12): *Excess intake of animal fats is the main cause of elevated serum cholesterol, the main contributor to atherosclerosis and its consequence - heart attack.*

Subject:

Elevated should mean lift, [or] more, since elevator means lift, right? (Juti 12)

Text (sentence 20): *Yet in spite of its possible favourable effects when taken in moderation, excess drinking increases the risk of traffic accidents, is associated with liver cirrhosis and is a source of other health and social problems.*

Subject:

That's right. They say that it is associated with a disease related to liver, which I think is probably liver cirrhosis because people who drink have probability to have liver cirrhosis easily. (Kathy 20)

Text (sentence 25): *In countries with excess or emerging chronic disease problems, guidelines for healthy nutrition include recommendations about fat intake.*

Subject:

Submerge means float, right? Emerging must mean sinking into chronic disease problems. (Pitchaya 25)

Subject:

The development of hypertension, which puts the individual at risk of strokes as well as heart attacks. What does hypertension mean? Probably a type of disease because they compare it with heart attacks. (Anita 13)

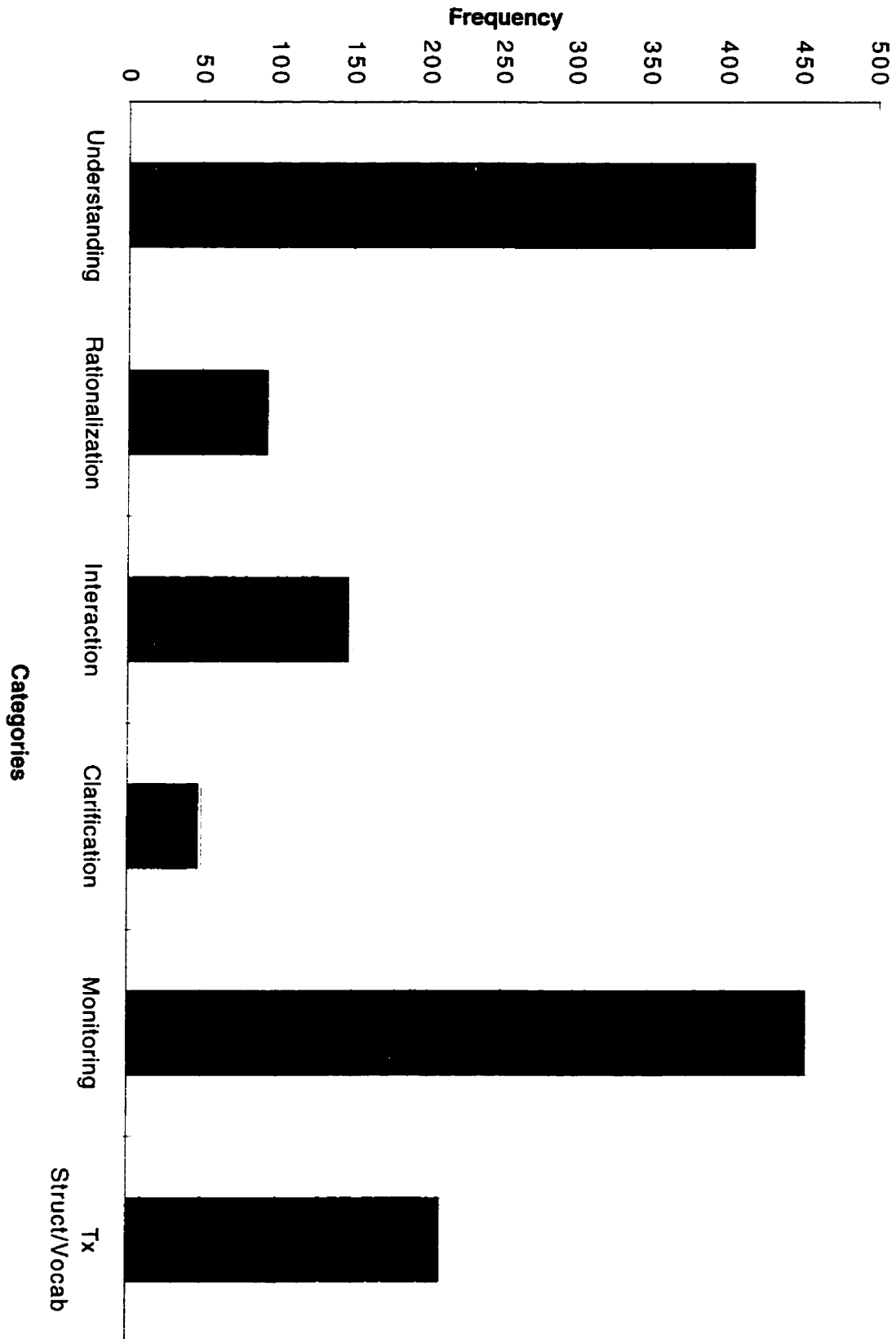
6g. **Comments on illustrations.** The strategy used to comment on illustrations in the article during the reading process. Six subjects used this strategy at a very low frequency of 1-3.

Examples of **comments on illustrations:**

Subject

[The picture] looks like tree roots. (Tanita 17)

Figure 2 shows the mean frequency of the six categories used by the 16 subjects.

Figure 2. The Mean Frequency of the Six Categories

Categories

Categories

The Second Research Statement and the Findings

This section of Chapter Five focuses on the findings in relation to the second research statement. It discusses whether there is any difference in the use of comprehension monitoring strategies between the two groups of subjects with different levels of English proficiency as determined by the TOEFL test and the academic records of the two groups of subjects.

Table 4 shows the mean frequency of the 28 strategies used by the 16 subjects, the higher proficiency group (HPG), and the lower proficiency group (LPG). Figure 3 shows the mean frequency of the use of the 28 strategies by the higher and lower proficiency groups. Figure 4 shows the mean frequency of the six categories used by the higher and the lower proficiency groups.

Of all 28 strategies identified in this study, there were 3 strategies which showed statistically significant differences, as a result of using the Mann-Whitney U - Wilcoxon Rank Sum W Test. They were the strategies of **world knowledge, rereading, and expressing intention to return to earlier part of the text.**

The Strategy of World Knowledge

There was a significant difference in the frequency of occurrence of **world knowledge** ($p < .05$), with the HPG using it more frequently than the LPG.

Table 4

The Mean Frequency of the 28 Strategies Used by the Entire Population, by the Higher Proficiency Group, and by the Lower Proficiency Group

Strategies	(M) Entire population	(M) Higher prof. group	(M) Lower prof. group
Translation	43.81	26.37	61.25
Rephrasing	27.00	23.25	30.75
Summarization	3.50	2.50	4.50
Interpretation of the text content	9.62	11.50	7.75
React to text and to world knowledge	4.25	6.25	2.25
World Knowledge	7.25	11.12	3.37
Association	.56	.87	.25
Question info in the text/ questioning world knowledge	5.25	5.87	4.62
Monitoring comprehension	2.87	3.37	2.37
Assessing one's understanding	1.31	1.12	1.50
Self-affirmation	.68	.62	.75
Confirming comprehension	.81	1.25	.37

Strategies	(M) Entire population	(M) Higher prof. group	(M) Lower prof. group
Correcting earlier hypothesis/ assumption (inc. vocabulary)	2.37	2.00	2.75
Rereading	53.75	26.37	81.12
Expressing confusion (content and vocabulary)	17.62	14.37	20.87
Expressing intention to return to earlier part of the text	1.62	.50	2.75
Expressing intention to keep on reading despite confusion	4.81	1.87	7.75
Giving instructions to oneself asking and answering oneself	2.56	2.62	2.50
Wait/stop/slow down	1.50	.50	2.50
Expressing intention to use glossary	1.12	.50	1.75
Consulting glossary	2.06	1.50	2.62
Knowledge of grammatical structure and text organization	3.06	2.25	3.87
Comments/suggestions on grammar and text organization	1.25	2.00	.50
Pronunciation/spelling	1.00	.62	1.37
Identifying vocabulary	2.87	2.00	3.75
Comments on vocabulary	1.75	1.37	2.12
Identifying/forming hypothesis of meaning of vocabulary	19.62	17.50	21.75
Comments on illustrations	.56	.25	.87

Figure 3. Twenty-eight Strategies of the Higher and Lower Proficiency Groups

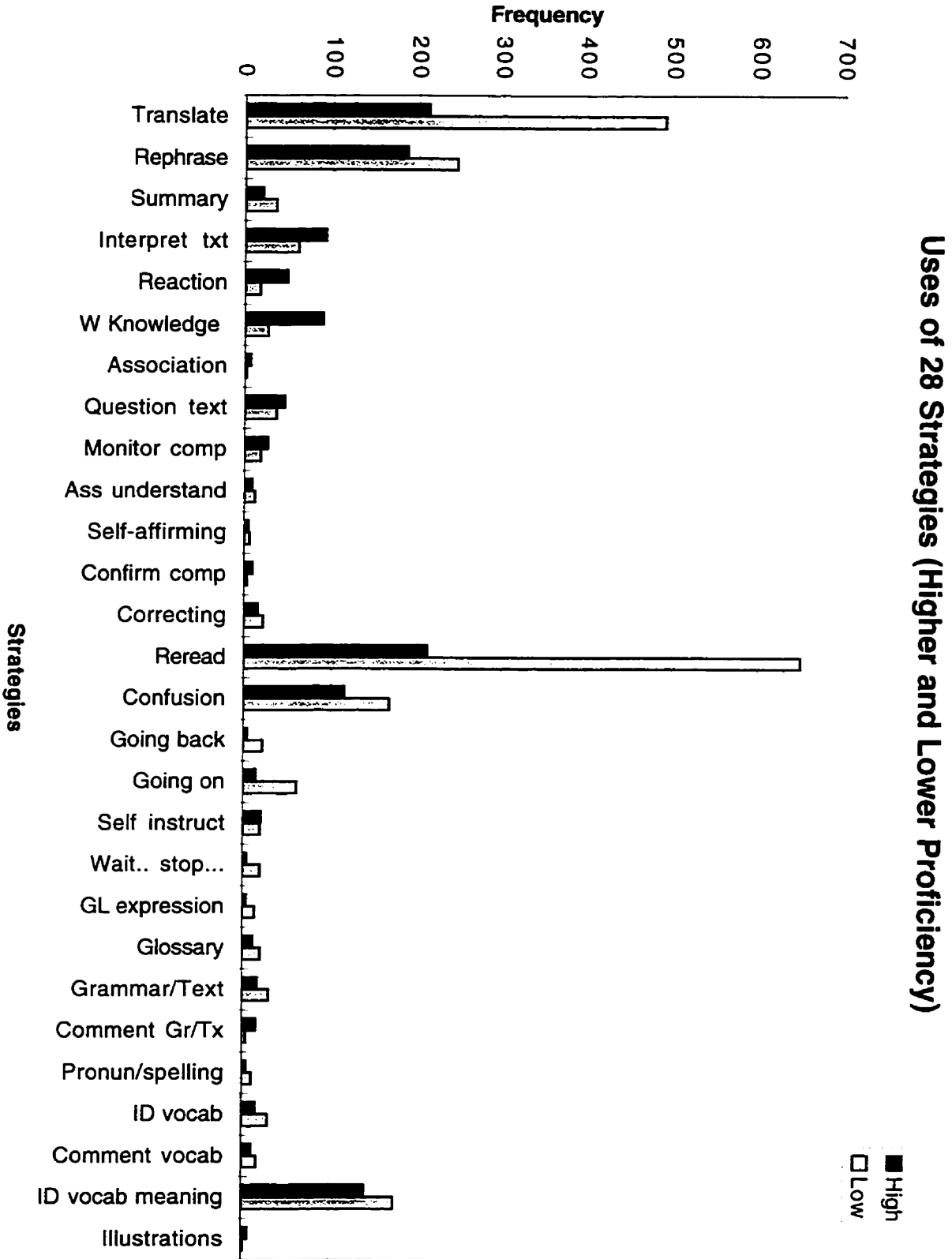
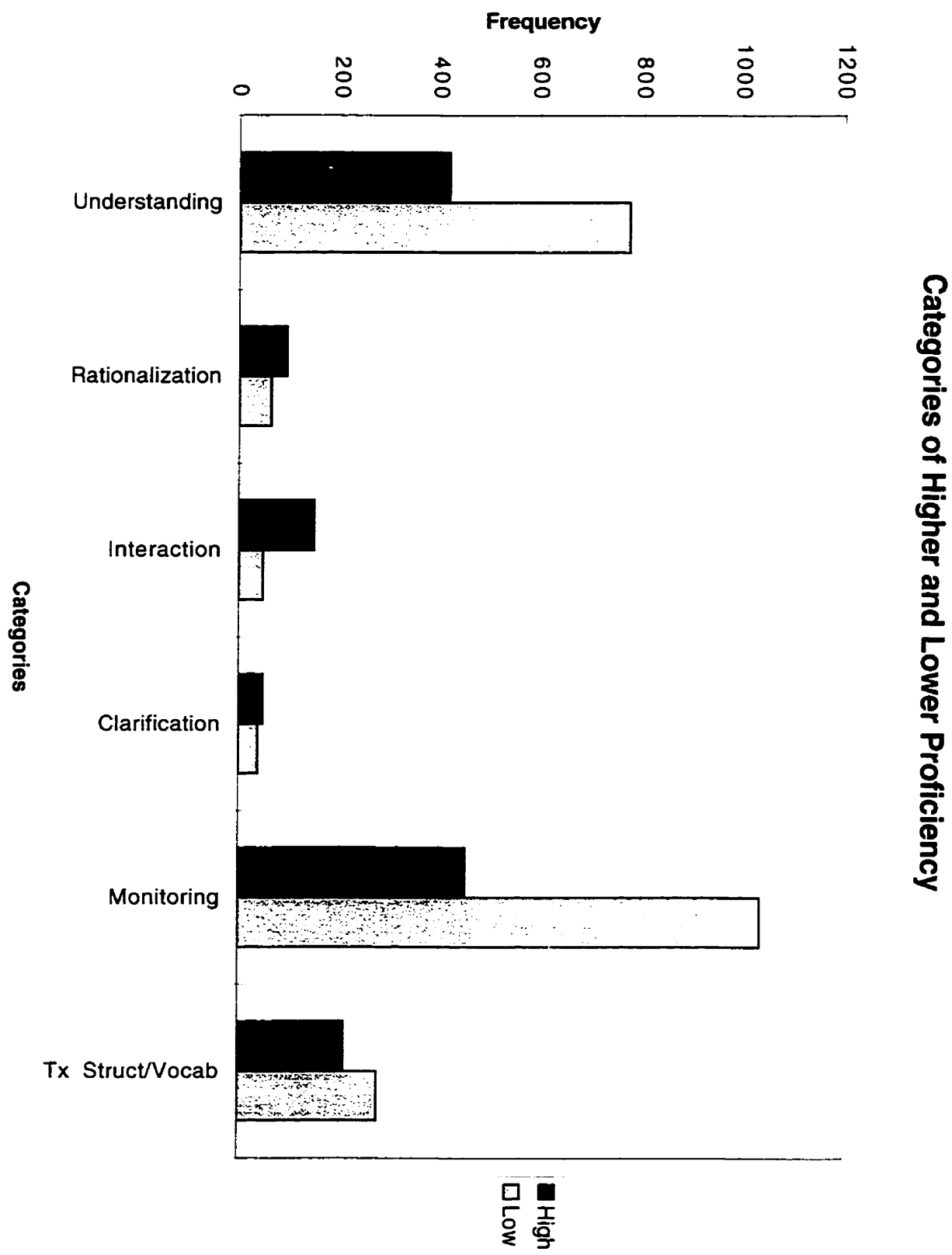


Figure 4. Use of the Six Categories by the Higher and the Lower Proficiency Groups

The Strategy of Rereading

There was a significant difference in the frequency of use of **rereading** between the higher and the lower proficiency groups ($p < .05$), with the lower proficiency group using it more frequently than the higher proficiency group.

The Strategy of Expressing Intention to Return to an Earlier Part of the Text

There was a significant difference in the frequency of use of this strategy ($p < .05$), with the the lower proficiency group using it more frequently than the higher proficiency group.

The Findings in Relation to the Six Types of Categories of Strategies

With regard to the six major categories of strategies, using the Mann-Whitney U - Wilcoxon Rank Sum W Test, only the category of ***comprehension monitoring*** ($p < .05$) showed a significant difference between the two groups of subjects, with the subjects in the lower proficiency group using a combination of the strategies in this category more frequently than the subjects in the higher proficiency group. There was no significant difference in the use of the combination of the strategies in any other categories.

The findings also showed that there was a hierarchical order of the use of the first six strategies by mean frequency of the subjects in the higher and the lower proficiency groups. Table 5 shows the average sequential orders of strategy frequency of the higher and the lower proficiency groups. The findings showed that the first six strategies - 1. rereading, 2. translation, 3. rephrasing, 4. identifying meaning and forming hypothesis of meaning of vocabulary, 5. expressing confusion (content and vocabulary), and 6. interpretation of the text content, were used in the same rank order for both groups of proficiency. This issue will be discussed in detail in Chapter Six.

Another finding, by using the Spearman Correlation Coefficient, also showed that there was a significant correlation between the use of the strategies of **translation** and **rereading** in the LPG (sig. = .040) whereas there was no significant correlation between the use of these two strategies in the HPG (sig. = .734). The study also attempted to discover whether there were correlations of the use of these two strategies between the two groups of proficiency. The results showed no significant correlations between the two groups of proficiency in using these two strategies. Tables 6 and 7 show the frequency and rank order of **rereading** and **translation** of both groups of proficiency. The findings (see Table 6) showed that:

Table 5

The Hierarchical Order of the Mean Frequency of Strategies of the Lower and the Higher Proficiency Groups

Lower proficiency		Higher proficiency	
Strategies	Mean freq.	Strategies	Mean freq.
1. rereading	81.12	1. rereading	26.37
2. translation	61.25	1. translation	26.37
3. rephrasing	30.75	3. rephrasing	23.25
4. id& hypo meaning voc	21.75	4. id& hypo meaning voc	17.50
5. expressing confusion	20.87	5. expressing confusion	14.37
6. text interpretation	7.75	6. text interpretation	11.50
7. going on	7.75	7. world knowledge	11.12
8. questioning text	4.62	8. react to text & W Kn	5.87
9. summarization	4.50	9. questioning text	5.37
10. grammar/text	3.87	10. monitoring compre	3.37
11. identifying vocabulary	3.75	11 .instr/self- answer	2.62
12. world knowledge	3.37	12. summarization	2.5
13. corrections	2.75	13. grammar/text	2.25
14. going back	2.75	14. corrections	2.00

Lower proficiency		Higher proficiency	
Strategies	Mean freq.	Strategies	Mean freq.
15. glossary	2.62	15. identifying vocabulary	2.00
16. wait/stop/slow down	2.50	16. comments gr/text	2.00
17. instr/self-answer	2.50	17. going on	1.87
18. monitoring compre	2.37	18. glossary	1.50
19. reaction to text &W Kn	2.25	19. comments vocabulary	1.37
20. comments vocabulary	2.12	20. confirming compre	1.25
21. express using glossary	1.75	21. assessing understand	1.12
22. assessing understand	1.50	22. association	.87
23. pronun/spelling	1.37	23. self-affirmation	.62
24. comments illustration	.87	24. pronun/spelling	.62
25. self-affirmation	.75	25. going back	.50
26. comments gr/text	.50	26. wait/stop	.50
27. confirming compre	.37	27. express using glossary	.50
28. association	.25	28. comments illustration	.25

Table 6

The Frequency and Rank Order of Rereading and Translation in the Lower Proficiency Group

Subjects	Rereading frequency	Rank order	Translation frequency	Rank order
Pitchaya	260	1	136	1
Yajit	112	2	60	3
Patsiri	76	3	123	2
Tanita	67	4	52	5
Anita	46	5	28	6
Pim	44	6	18	7
Chana	28	7	18	7
Sandee	16	8	55	4

Table 7

**The Frequency and Rank Order of Rereading and Translation in
the Higher Proficiency Group**

Subjects	Rereading frequency	Rank order	Translation frequency	Rank order
Wattana	46	1	24	5
Tarin	44	2	31	2
Tara	36	3	0	7
Nirand	32	4	80	1
Sulalai	21	5	25	4
Kathy	17	6	23	6
Siri-aree	11	7	0	7
Juti	4	8	28	3

1. Pitchaya, who reread more frequently than others, also translated the most.

2. Yajit, ranked second in rereading, ranked third in translation.

3. Patsiri, ranked third in rereading, ranked second in translation

4. Tanita, ranked fourth in rereading, ranked fifth in translation.

5. Anita, ranked fifth in rereading, ranked sixth in translation.

6. Pim, ranked sixth in reading, ranked seventh in translation.

7. Chana, ranked seventh in rereading, also ranked seventh in translation.

8. Sandee, ranked eighth in rereading, ranked fourth in translation.

The findings (see Table 7) also showed that:

1. Wattana reread more frequently than others in this group, but ranked fifth in translation.

2. Tarin, ranked second in rereading, also ranked second in translation.

3. Tara, ranked third in rereading, ranked seventh in translation.

4. Nirand, ranked fourth in rereading, ranked first in translation.

5. Sulalai, ranked fifth in rereading, ranked fourth in translation.

6. Kathy, ranked sixth in rereading, also ranked sixth in translation.

7. Siri-aree ranked seventh in rereading, ranked seventh in translating.

8. Juti, ranked eighth in rereading, ranked third in translating.

The issue of the correlations between the two strategies in both groups of proficiency will be discussed in detail in Chapter Six.

The Third Research Statement and the Findings

This section focuses on the findings in relation to the third research statement, whether there is any difference in the use of the strategies between the higher proficiency second and fourth year university students as well as between the lower proficiency second and fourth year university students.

Figure 5 shows the uses of the 28 strategies by the higher proficiency second and fourth year students and Figure 6 shows the uses of the 28 strategies by the lower proficiency second and fourth year students.

With regard to the difference in the use of the 28 strategies identified in this study between the higher proficiency second and fourth year students, using the Mann-Whitney U-Wilcoxon Rank Sum W Test, the results showed that there was only one strategy which had a significant difference--the strategy of **association** ($p < .05$), with the fourth year students using it more often than the second year students.

Figure 5. Twenty-eight Strategies of Second and Fourth Year Subjects (Higher Prof.)

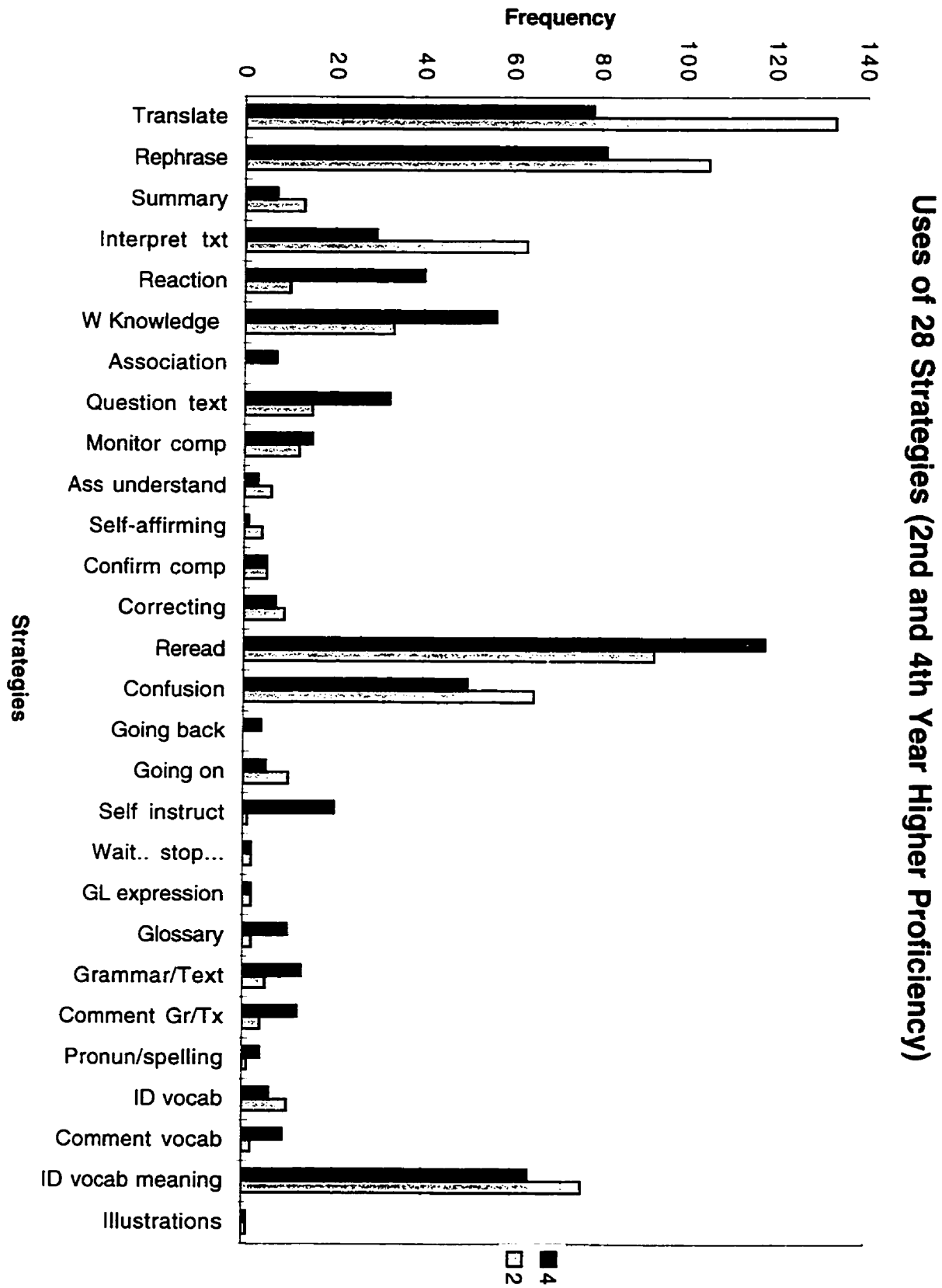
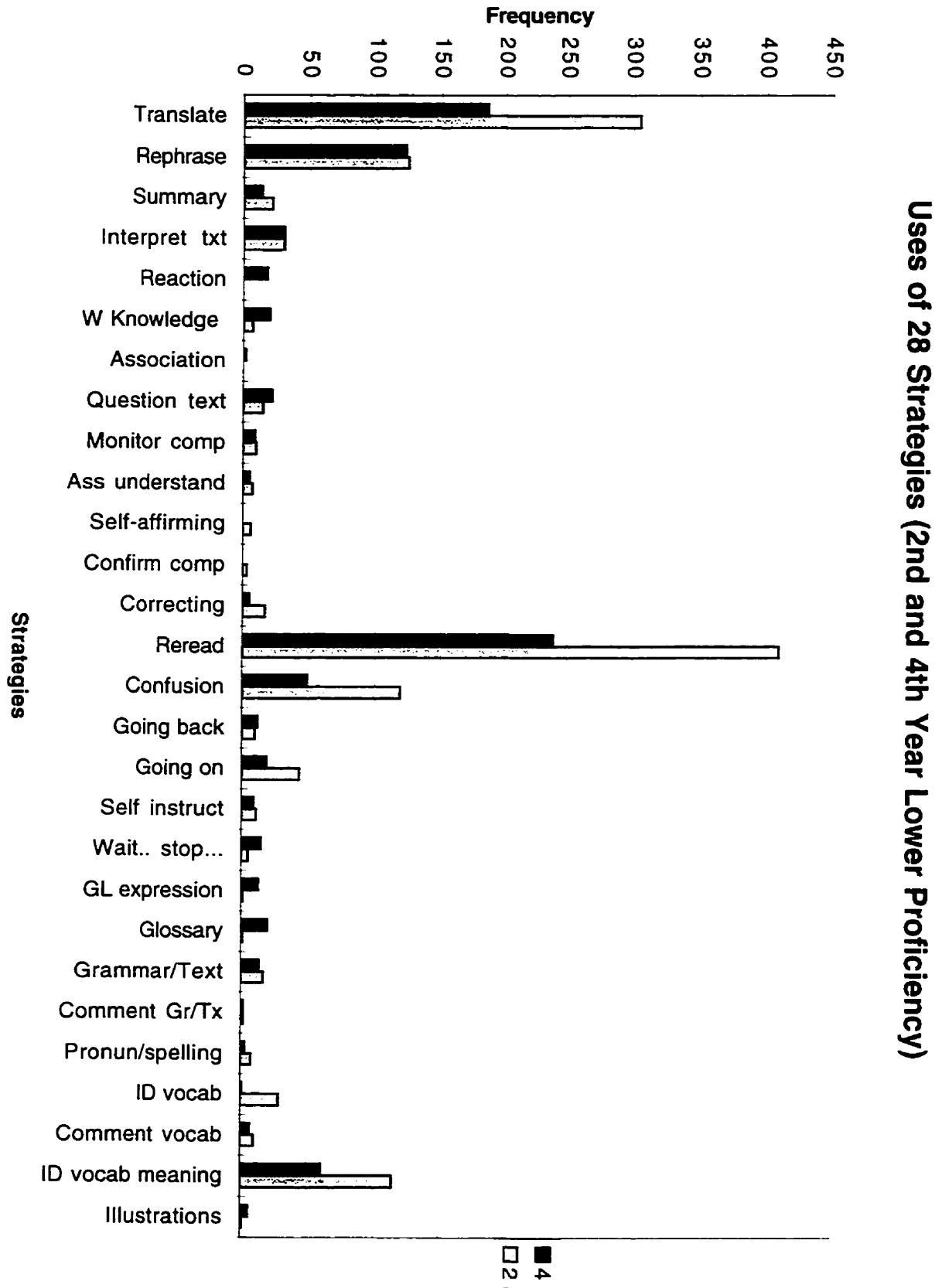


Figure 6. Twenty-eight Strategies of Second and Fourth Year Subjects (Lower Prof.)



With regard to the difference in the use of the 28 strategies between the lower proficiency second and fourth year students, the findings showed that there were only two strategies which had significant differences--the strategy of **reaction to the text content and to world knowledge** ($p < .05$), with the lower proficiency fourth year students using this strategy more often than the lower proficiency second year students, and the strategy of **expressing confusion (content and vocabulary)** ($p < .05$), with the lower proficiency second year students using this strategy more often than the fourth year students. These findings will be further discussed in Chapter Six.

CHAPTER SIX

Discussion of the Findings and the Theoretical Construct

This chapter is divided into four sections. It discusses the findings which were reported in the previous chapter in an attempt to answer the research questions in more detail. The first section discusses the findings as related to the role of the second/foreign language proficiency and cognitive and academic abilities on comprehension monitoring strategy use in reading. The second section compares the 28 strategies in this research to strategies in other studies. The third section discusses the findings related to the third research question in more detail. The final section discusses the individual differences of strategy use among the 16 subjects.

Discussion of the Findings in Relation to Target Language Proficiency and the Comprehension Monitoring Strategy Use in Reading

This section is divided into three parts. The first part elaborates on three strategies identified in Chapter Five which show statistically significant differences between the subjects in the higher and lower proficiency groups. It also discusses some other strategies which show differences in frequency of occurrence between the two groups. The

second part discusses the hierarchical order of strategy use exploring whether there are any similar patterns of strategy use between the two groups of readers. The third part examines the role of the levels of target language proficiency and first language skills on the use of comprehension monitoring strategies.

The Differences in Strategy Use Between the Two Groups of Proficiency Levels

As reported in Chapter Five, out of 28 strategies identified in this study, only 3 strategies had statistically significant differences in distinguishing the subjects in the higher proficiency group (HPG) from the subjects in the lower proficiency group (LPG). They were **rereading**, **expressing intention to return to earlier part of the text**, and **world knowledge**.

Rereading. It was discovered that the strategy of **rereading** showed a statistically significant difference between the subjects in the higher and lower proficiency groups ($p < .05$).

In their study of native English speakers, Bereiter and Bird (1985) identify two main reasons why rereading occurs. One is that the reader fails to comprehend the last part read and the other is that the reader loses the connection with previous segments. Either of these two reasons could

trigger rereading. In addition, both of the two above-mentioned reasons are indicative of comprehension failure.

The strategy of rereading is usually considered a helpful strategy if used appropriately. Rereading, or *backtracking* in Bereiter and Bird (1985)'s term, is one of the four main strategies which were used effectively by Bereiter and Bird's subjects when facing comprehension difficulties. **Rereading** was used in much greater frequency by the LPG in this study. One of the reading behaviours accounting for the greater occurrence rate of **rereading** among many lower proficiency subjects was processing the text in small and fragmented chunks. When the reader focuses on small chunks of sentences and tries to translate the meaning of those fragments, it is more difficult to understand the general meaning of the text; hence this type of reader must go back and reread part of the text. The protocols demonstrated that these subjects reread text again and again in the same sentence. The protocols also showed that the subjects lacked understanding of the text, and had to go back and reread part of the text. Because these subjects concentrated on determining the meaning of fragmented pieces of information in the text, they lost the connection and had to reread to reconnect their thoughts.

For evidence showing how frequent many subjects read, reread, and translated in short chunks, the researcher counted the number of words

each subject verbalized in each chunk in reading, rereading, and translating from one word to five words from sentence 1 to sentence 10. This information is presented in Table 8. The findings showed that the first four subjects who tended to do fragmented decoding were in the LPG. Nirand was the only subject who tended to read and translate in smaller chunks than other subjects in the HPG.

These findings were also supported by the frequency rate of **rereading** and **translation**. Several subjects in the LPG who tended to use the strategy of **rereading** with a high frequency also used the strategy of **translation** with a high frequency as presented in Table 6 (p. 141) in Chapter Five. This would be anticipated because there was a significant correlation between the use of these two strategies for the subjects in the LPG. The data demonstrated the relationship between the frequency of **rereading** and **translation** for almost every subject in the lower proficiency group. Sandee was the only subject in this group whose data did not show a significant correlation between the use of these two strategies.

Compare the relationship of the frequency of strategy use of **rereading** and **translation** in the HPG (see Table 7 on p. 142 in Chapter Five). The HPG subjects used these two strategies in a much lower frequency than the LPG subjects. The findings showed that there was no

Table 8

**Evidence of the Number of Words From 1-5 Verbalized by 16
Subjects in Reading/Rereading and Translation (sentence1-10)**

Rank orders of frequency	Subjects	Proficiency levels	Frequency of (re)reading	Frequency of translation
1	Pitchaya	lower	90	36
2	Patsiri	lower	52	32
3	Yajit	lower	38	18
4	Tanita	lower	31	12
5	Nirand	higher	26	12
6	Chana	lower	17	1
7	Wattana	higher	14	3
8	Sandee	lower	5	7
9	Tara	higher	11	-
10	Tarin	higher	8	1
10	Pim	lower	6	3
12	Juti	higher	1	3
12	Siri-aree	higher	4	-
14	Anita	lower	2	1
14	Kathy	higher	3	-
14	Sulalai	higher	3	-

correlation between the use of these two strategies in the HPG

Expressing intention to return to an earlier part of the text.

Another strategy which showed a statistically significant difference between the two groups of proficiency is the strategy of **expressing intention to return to an earlier part of the text** ($p < .05$). The findings showed that the LPG subjects used this strategy more frequently than the HPG subjects. This strategy represents the subject's intention to go back and reread part of the text because the subject might not understand the present information or the subject loses the connection between the earlier and present information. This strategy correlated with the strategy of **rereading**, which also received a higher frequency of use from the subjects in the lower proficiency group. That is, these two strategies demonstrate a lack of understanding or confusion. When comprehension failure occurred, the subjects expressed their need to go back and reread previous portions of the text. This strategy also coincided with the strategies of **expressing confusion (content and vocabulary)** and **expressing intention to keep on reading in spite of confusion**, which were also used at a greater frequency by the LPG.

World knowledge. The findings showed that the subjects in the HPG used this strategy more often than the subjects in the LPG ($p < .05$).

After reading part of the text, several lower language proficiency subjects tended to respond to the text by translating and rereading again and again. On the other hand, most higher proficiency subjects generally responded to the text by using their world knowledge to expand or support information in the text.

Compare the examples of the responses of one subject in the higher proficiency group to another subject in the lower proficiency group.

Text (sentence 19): *Alcohol has become an integrated part of the diet in many cultures.*

Subject:

Alcohol has become an integrated part of the diet in many cultures. Nowadays, alcohol has become a culture in many countries. As I said before, in Switzerland and in Germany, they drink beer and umm... wine, something like this. And also in Thailand as well. We have the party when we have to go and meet other people. Alcohol is one thing that we use to know each other and to make our personality look acceptable in the society. And I don't think it's important. Many people say we should drink, although we drink not too much, but a little bit, it means that you can get along with each other very

well. And that's for to make meeting, to social [socialize] with other people. But I don't think it's very good. I think it depends. It doesn't mean that if we drink alcohol, that means you are good, you are social, you are care about other person, and that make you look better. But in contrast, it can cause you in the trouble if you eat or drink it too much.

They suggest that healthy diet--the diet which we can get advantage from us are better, better than alcohol that we like, something like that. (Tara 19)

This example shows that this higher proficiency subject interacted with the text several times. After rephrasing information in sentence 19, she confirmed her earlier statement (**confirming comprehension**) about alcohol in Switzerland and Germany. She then used her world knowledge and personal experience in talking about the drinking situation in Thailand. She then reacted to that situation (**reaction to the text content and to world knowledge**) and also used her world knowledge to talk about some Thai people's attitude in using alcohol as a medium to socialize. Following that, she stated her disagreement with this idea (**reaction to the text content to world knowledge**).

On the other hand, here is an example of one subject in the LPG responding to the text:

Text (sentence 4): *Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America and only very recently in other areas.*

Subject:

Biological, therefore, people have had little time to adapt to rapid changes in food. Biologically... Biologically.

Probably is... *Biological, therefore... Biologically, they say that it happened two centuries ago, biologically, which they discovered. Therefore... Therefore. *People have had little time to adapt to rapid changes. Therefore, people. Have had little time. Have had little time to adapt to rapid changes. In food. In food. *Which occurred first in Northern Europe. Which occurred first... which occurred first. *In Northern Europe and North America. Northern Europe and North America. And only very recently... and only very recently in other areas. And very recently very recently in other areas too. (Pitchaya 4)****

(the underlined statements signify the strategy of **translation**)

Basically, what this subject did in sentence 4 was read a segment of the sentence, reread and translate, repeating this cycle over and over. Instead of reading the whole sentence and trying to understand what the text said in general, she did many fragmented reading, rereading, and translating those fragmentations.

Besides the strategy of **world knowledge** which showed a significant difference, there were also some other strategies which, although they did not have statistically significant differences, showed differences in frequency of occurrence between these two groups. The strategy of **reaction to the text content and to world knowledge** was used more often by the HPG (the mean frequency = 6.25) than the LPG (the mean frequency = 3.37). The overuse of **rereading** and **translation** among many subjects in the LPG might be the cause of the less frequent use of the strategy of **world knowledge** and **reaction to the text content and to world knowledge**. When subjects process their thoughts in reading by focusing on small pieces of information, instead of looking at the whole picture of the text, they are not able to efficiently use their world knowledge to play a role in their reading comprehension. In addition, the data also showed that the strategy of **interpretation of the text** was used more frequently by the subjects in the HPG than the subjects in the LPG.

Past research has identified these three strategies, **world knowledge**, **reaction to the text content and to world knowledge**, and **interpretation of the text content**, as good strategies (e.g., Baker, 1989; Randall et al., 1986). In this study, the readers who used the strategies of **world knowledge**, **reaction to the text content and to world knowledge**, and **association** used them in a productive way. That is, their comments indicated their understanding of the text, although there were some statements made by some subjects which were initiated by the text content and later were directed to the subjects's own experience (the strategy of **association**). These strategies should be encouraged in reading comprehension classes.

An implication which can be drawn from these findings is that the focus on fragmented text processing and repetitive fragmented rereading and translation can hinder readers from using other useful strategies to their fullest potentials. In short, readers focus on fragmented text processing to the disadvantage of other potentially useful strategies for reading comprehension. These findings are also supported by other researchers in the area of reading in a second/foreign language, e.g., Devine (1983) and Hosenfeld (1977). Devine (1983) concludes that relying too much on graphic cues and perhaps syntactic cues may be the cause of poor reading comprehension "since dependence on these cues severely

restricts a reader's flexibility in responding to other possible sources of meaning" (p. 82). Readers with less proficiency but with high academic, cognitive ability or high literacy in the first language, possess comparable abilities in using potentially helpful reading strategies as readers with higher target language proficiency. However, too much focus on fragmented text processing hinders this type of reader from utilizing good reading strategies because they are too busy focusing on short and repetitive fragmented information. This forces them to ignore the general meaning of the text and hence narrows their use of other potentially helpful reading strategies.

Although knowledge of vocabulary is crucial to second/foreign language reading comprehension, it is unlikely that readers recognize every word in materials they read. To look up every unknown word in the glossary would be counter-productive. Therefore, readers have to adapt strategies to tackle comprehension problems.

It appeared that strategies involving vocabulary are important to, and are widely used by, both higher and lower language proficiency subjects in this study. Block (1986) identifies one of the strategies which deals with vocabulary as *solve vocabulary problem*. This strategy is used when the subjects use "context, a synonym, or some other word-solving behavior to understand a particular word" (p. 474).

In another study of comprehension monitoring strategies of 20 nonproficient college readers (native speakers of English) done by Steinberg et al. (1991), the participants also used strategies relating to vocabulary. Two word-related strategies in Steinberg's study are *recognizing unfamiliar word* and *formulating hypothesis about meaning*.

The frequent use of the strategies which are related to words or vocabulary by the subjects in this study, no matter what level of language proficiency they were in, might be an indication that EFL Thai readers view knowledge of vocabulary as essential to their understanding of the material they read. In this study, when the readers did not understand vocabulary, they expressed their incomprehension and when they encountered too many unknown vocabulary or technical terms, they complained or commented. When they thought they have not seen vocabulary before, they said so. When they thought they knew the meaning of vocabulary, they identified the meaning, or they used context or linguistic cues to identify the meaning. It was likely that using these strategies helped them understand the text content better. In addition, when they were not quite certain about the meaning of vocabulary, they engaged in some type of hypothesis about the meaning. This could be in the form of using their morphological knowledge, i.e., prefix, suffix, or contextual guessing and/or the combination of contextual guessing and their own

world knowledge. In any case, they tried to use any type of knowledge in finding a solution to their limited knowledge of vocabulary.

There are also some other strategies which are considered helpful and should be encouraged, but were not used frequently by subjects in both groups of proficiency levels. The strategy of **questioning information in the text/noting discrepancies in the text/questioning world knowledge** was used by the reader to question the truthfulness of information. This strategy represents the reader's ability to evaluate the text content. This is one of the strategies in Randall et al.'s (1986) research which signify that the reader moves "beyond the literal rephrasing or isomorphic representation of the text" (p. 245). However, this strategy only received a frequency mean of 5.37 from the HPG and 4.62 from the LPG.

Another strategy, **summarization**, which is used when the reader sums up information read so far, was not used in great frequency by either group in this study. This strategy is considered helpful and should be encouraged to improve reading comprehension.

The strategy of **monitoring comprehension**, which is used when readers follow up their thoughts, reflects the combination of earlier information and present information. This is considered a helpful strategy for readers to connect information in the text in order to be able to

proceed to the next segment with ease. This strategy was used at a low frequency by both proficiency groups.

The Average Sequential Order of Frequency of Strategies Among the Higher and the Lower Proficiency Subjects

This section looks at the strategies used in a hierarchical order of frequency of strategies of both the higher and the lower English proficiency groups to find out whether there are any patterns of strategy use between these two groups and to compare the frequency of strategy use. Moreover, these findings add more information on the role of target language proficiency and readers' cognitive/academic ability on target language comprehension strategy use.

From Table 5, the findings showed that the first six strategies:

1. rereading, 2. translation, 3. rephrasing, 4. expressing confusion (content and vocabulary), 5. identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings), and 6. interpretation of the text content, demonstrated the same rank order of hierarchy of frequency for both groups of proficiency.

The difference in the pattern of these six strategies used by both groups was the frequency. Note that the LPG used the first five strategies

except **interpretation of the text content** more frequently than the HPG, especially the first two strategies--**rereading** and **translation**.

Of the six strategies used the most by both groups of proficiency, strategy #6--**interpretation of the text content**--was the only strategy used more frequently by the HPG than the LPG.

Note that the strategies #1-6, which were used the most by both groups of proficiency, were employed more than 10 times in the HPG, and strategies # 1-5 were employed more than 10 times in the LPG. Strategy #6 was the only strategy which was used fewer than 10 times from the LPG. It may be concluded that these six strategies are considered the main strategies used by both groups of readers.

Strategy #7--**world knowledge** (which was also the last strategy for which the mean frequency was greater than 10 in the HPG) was the point of departure from identical rank order of strategies for the HPG from the LPG. Note that the ranks of the employment of the two strategies which are related to world knowledge and are identified as good strategies from past research (i.e., Randall et al., 1986), under the category of *interaction to the text* --the strategies of **world knowledge** and **reaction to the text content and to world knowledge**--were much different between the two groups of proficiency levels. The strategy of **world knowledge** ranked 7th among the most-used strategies for the HPG, whereas it ranked

12th for the LPG. In addition, the mean frequency was also different-- 11.12 for the HPG but only 3.37 for LPG. The other strategy, **reaction to the text content and to world knowledge**, ranked 8th among the most used strategies for the HPG with the mean frequency of use of 6.25, while it ranked 19th for the LPG with the mean frequency of only 2.25.

The Role of Target Language Proficiency and the First Language Skills on Comprehension Monitoring Strategy Use

The findings on whether there is a pattern or difference in strategy use between the two groups of different language proficiency levels, the difference in mean frequency of strategy use, and the rank order of frequency of strategies will be discussed in relation to the role of target language proficiency and first language cognitive and academic abilities on comprehension monitoring strategy use in target language reading (in this case English as a foreign language).

The findings in this study are related to the two issues under debate mentioned earlier. The research in the past supports the role of both target language proficiency and the first language literacy ability, reading ability, and higher level strategies developed in first language on target language reading comprehension. The results of these studies were based mainly on techniques used to test readers' reading comprehension by using tests such

as cloze or multiple-choice tests. Unlike other studies, this research focuses on the readers' comprehension monitoring strategies used while reading an English text. The two issues under debate were discussed earlier in Chapter Two in the Literature Review Section. However, they will be elaborated in this chapter in relation to the findings of this study.

Clarke (1979, 1980) and Cziko (1980) are two main ESL figures who support the view that limited target language proficiency plays a more important role in second language reading, although Clarke did not deny some transfer of first language skills or The Universals Hypothesis of Reading.

While Clarke (1979, 1980) and Cziko (1980) support the role of L2 competence in L2 reading, Coady (1979), Cummins (1980), and Hudson (1982) hold a different view, which supports L1 higher level abilities, cognitive/academic language proficiency, and L1 reading skills on L2 reading ability, respectively. Alderson (1984) extends the hypothesis relating reading ability to the cognitive/academic language proficiency dimension.

Hudson (1982) refers to Clarke (1979) and Cziko (1980)'s theory of *language ceiling* which emphasizes an important role of L2 proficiency in L2 reading. However, Hudson states that, although L2 proficiency affects L2 reading, good L1 readers still maintained better performances than less

proficient L1 readers in L2 reading despite the fact that both were at the same level of language proficiency. As a result, Hudson contends that just as L2 proficiency level effects L2 reading ability, L1 reading skills also have an effect on the degree to which L2 proficiency level restricts reading comprehension.

The results in this study on comprehension monitoring strategy use demonstrate that the 28 strategies found in this study were used by both groups of readers. Further, these two groups of readers demonstrated a pattern of strategy use at least in the first six strategies at the same rank order. This shows that readers with high academic or cognitive skills show a pattern of strategy use in reading, particularly the main strategies, despite the fact that they are different in their foreign language proficiency levels.

However, the results of this study do not completely deny the role of foreign language proficiency on foreign language reading because the statistically significant frequency differences of at least three strategies were observed. In addition, it should be noted that there were also several other important strategies which showed frequency differences between the two groups of readers although they did not receive statistically significant differences, i.e., the strategies of **translation, expressing confusion (content and vocabulary), interpretation of the text content, and reaction to the text content and to world knowledge**. In addition,

after the first six main strategies which were used at the same rank order by both groups have completed, the seventh most used strategy was the point where the difference between these two groups occurred.

The arguments whether the findings of this study support the role of target language proficiency on reading or not will be discussed as follows.

Clarke (1979) noted the important role of L2 proficiency on L2 reading in both of his studies. That is, a language competence ceiling or limited language proficiency reduces the ability of good L1 readers in applying good reading strategies in L2 reading. Note that Clarke does not deny that good L1 readers in both of his studies were still superior to poor L1 readers in their L2 reading. However, good L1 readers performed less well in their L2 reading than in their L1 reading. That is why Clarke contends that L2 proficiency plays a major role in L2 reading.

According to Clarke's interpretation of the results of his studies, Clarke places more emphasis on the role of L2 proficiency than on L1 reading ability although his studies show evidence of both factors. The present study, on the other hand, shows that foreign language proficiency has some effect on the frequency of many strategies used by both groups of readers. That is, strategies considered good strategies such as **world knowledge, reaction to the text content and to world knowledge, association, and interpretation of the text content** are used less

frequently by the LPG. In contrast, strategies which are not identified by the researchers as good strategies such as **translation** and **rereading** (if used inappropriately) are used more often by this group. Although it is not deniable that foreign language proficiency plays some role in frequency of comprehension monitoring strategy use in reading, the findings support the view that learners who have developed and possessed academic and/or cognitive abilities in their first language, but who have limited foreign language proficiency, are able to use these abilities when reading in foreign language or when confronting difficult foreign materials. This view is based on the findings which demonstrated that the 28 strategies were used by both groups of readers and that both groups shared a pattern of strategy use, despite their English proficiency differences. Because readers of the two groups had high cognitive and academic or literacy levels in their first language according to the assessment mentioned above, there was a tendency for these readers to use these first language skills to assist them in processing foreign materials. Despite the fact that one group had a higher proficiency level than the other, the readers of both groups still maintained their ability in employing the same comprehension monitoring strategies when they read an English text. These findings demonstrated that both groups shared similar patterns when approaching a foreign material of expository genre, at least when using main strategies, although there were

certain individual characteristics which each reader possessed. That is, after reading a segment of the text, they either rephrased or translated that information. When they did not understand or when there was some confusion, they reread. They also expressed their confusion of the content or vocabulary which they did not understand or recognize. They identified the meaning of vocabulary which they recognized or formed a hypothesis on the meaning of vocabulary which they were not certain. They made an interpretation of a segment of the text which they read to help them in better understanding of the text. These findings confirm the above-mentioned argument that high first language skills play an important role in strategy use in target language reading. The readers of the two groups of different English proficiency projected their capability in utilizing the reading skills they have acquired in their first language to apply to a foreign language text. Some implications which can be drawn from the findings are:

1. Readers who are cognitively competent or who have high literacy or academic skills are able to use their knowledge which they have acquired to assist them in processing difficult foreign materials.

2. It is likely that high literacy or cognitive and academic abilities acquired in the first language will also be applied to learning and hence reading in the target language.

3. Cognitive and academic skills play important roles in readers processing difficult foreign materials and help readers to deploy reading strategies to compensate for readers' limited target language ability.

4. Despite target language proficiency's role on readers' comprehension, readers' acquired cognitive or academic abilities help readers in employing comprehension monitoring strategies when approaching target language materials.

Comparison of the 28 Strategies to the Strategies in Other Studies Reviewed in the Literature

This section compares the 28 strategies found in this study classified into six categories with the strategies reviewed in the literature.

Block (1986) categorizes the strategies in her study into two levels: general comprehension strategies, which consist of 10 strategies, and local linguistic strategies, which consist of five strategies.

Casanave (1988) divides the strategies into two categories. One category is routine monitoring, which consists of predicting, checking understanding for consistency, and checking for overall understanding, and repair strategies which consist of evaluating what the problem is, deciding

how to resolve it, implementing the strategy as a result of the decision made, and checking the results.

Pereira (1991) classifies her eight moves into four major strategies:

1. Clarifying:
 - (a) Defining/Explaining concept or term
 - (b) Restating/Paraphrasing/Elaborating
2. Evaluating:
 - (c) Evaluation of text features
 - (d) Evaluating of text information
3. Reasoning:
 - (e) Making hypothesis/Predictions
 - Making inferences/Drawing conclusions
4. Monitoring Understanding:
 - (f) Expressing doubts/Self-questioning
 - (g) Confirming understanding/Interpretation
 - (h) Re-examining/Revising interpretation

(pp. 90-91)

Randall et al. (1986) categorize their readers' responses into two major comments: metacomments and meaning relevant comments.

Meaning relevant comments are then divided into comments restricted to text and comments beyond the text, which are then classified into affective, cognitive, and metacognitive. Randall et al. state that for the purposes of their study, metacognitive comments are limited only to readers' comments, reflections on, or monitoring of their activities. The activities themselves

are not included in this category. However, it is the cognitive category which is labeled as the largest body of student-text interactions category that they are most interested. This category consists of six strategies: identifying writer's purpose, making connections, providing additional information from academic or personal experience, interpreting, evaluating, and generalizing.

In Steinberg et al.'s (1991) study, the categorized comprehension monitoring strategies are based upon the Gibson taxonomy (1983), which was based on the work done by Thomas Anderson (1979). Steinberg et al.'s identified strategies are categorized into two major types of classification. The first type is divided into word-, sentence-, and discourse-related strategies; each of which contain several strategies. The second type is based upon the subjects' text comprehension processing.

The second type is divided into two major strategies--the strategies used by subjects when comprehension monitoring is proceeded with relative ease and the strategies used when problems in understanding occur. The strategies used during problem-free comprehension processing are then divided into primary strategies, which consist of (a) focusing on important information, (b) involving conventions of text, (c) reflecting comprehension, (d) linking portions of selection, and (e) associating experiences/textbook, and secondary strategies, which include (a)

developing and responding to a question or hypothesis, (b) adding explanatory words, and (c) visualizing images/text. In each of these subcategories, several strategies are then identified. The debugging or corrective strategies are divided into preliminary debugging strategies, primary debugging strategies, and secondary debugging strategies. These major strategies are also divided into subcategories, each of which consists of several strategies.

There are strategies identified in this study which are similar to the strategies found in the above mentioned studies, although there are certain strategies pertaining only to this study. One of the differences is that more strategies are identified in the current research than other studies except for the study done by Steinberg et al. (1991), whose strategies are identified in great detail. However, there are some strategies in the researcher's study which are not found in the study done by Steinberg et al.

The findings demonstrate that main strategies which are used in greater frequency by the subjects in this study also have greater frequency of occurrence by subjects in the above-mentioned research in the literature. The main strategy which readers generally use to understand the text is **rephrasing**, called *paraphrasing* by Block and by Steinberg et al., which is used at a high frequency in Block's, Steinberg et al.'s studies and this study. In fact, in Block's and Steinberg et al.'s studies, this strategy is used

at the highest frequency by their readers. In the current study, since the subjects reported their thoughts in Thai, the strategy of translation also occurred. Of all the strategies found in this study, the combination of the strategies of **translation and rephrasing**, which represents how readers try to understand the text, also received the highest frequency. The combination of *restating/paraphrasing/elaborating* has the third highest frequency of occurrence in Pereira's study.

The strategy of **rereading** is also used at a high frequency in Block's, Steinberg et al.'s, as well as the current studies. The strategy of **interpretation of the text**, which includes (a) forming a hypothesis, (b) drawing a conclusion, (c) making an inference, (d) making a prediction, and (e) making an assumption, is closely related to the combination of the strategies of *anticipate content* and *interpret the text* in Block's study, and has the third highest frequency of occurrence. In Pereira's study, the strategy of *making hypotheses/prediction/inferences/drawing conclusion* receives the highest frequency of occurrence.

Another strategy frequently used in the current study--**expressing confusion (content and vocabulary)**-- is identified in Block's study as the strategies of *questioning of clause* and *questioning of vocabulary*, and are also used at a high frequency in Block's study. The strategy of **identifying meaning and forming hypothesis of meaning of**

vocabulary (unspecific and specific meaning) in the current study, one of the six strategies reported as used the most by both groups of proficiency, is identified in Steinberg et al.'s study as the strategies of *recognizing unfamiliar word* and *formulating hypothesis about meaning*. The combination of these two strategies in Steinberg et al.'s study is used at the fourth highest frequency. In Pereira's study, the move of *defining/explaining concept* is used at the fourth highest frequency as well.

The findings demonstrate that the main strategies used by readers identified in the literature and in the researcher's study are very similar. Thus, it is concluded that readers use main strategies rephrasing (and in this study, translating) the text content, to try to understand the text, expressing confusion and rereading when they find that there is some difficulty in understanding the text, making some kind of interpretation such as forming a hypothesis or making an inference, in order to make sense of the text, and identifying the meaning of vocabulary or forming hypothesis of the meaning of vocabulary to help understand the text, signifying that vocabulary is important in text comprehension.

The results demonstrate that there are many other strategies which readers also use, but to a lesser degree. However, these strategies, alongside with main strategies, are also important in assisting readers to improve their comprehension of the text such as the strategy of

knowledge of grammatical and text organization, to help them monitor the text better and follow up the content of the text such as the strategies of **monitoring comprehension**, or **assessing one's understanding**, and to evaluate the truthfulness of information in the text when the text may not provide sufficient information or when readers have some doubts about information provided by the text.

Although there are many strategies in this study which share some similarities with the above-mentioned studies in the literature, there are also some strategies which pertain only to this study. These strategies are the strategies of **translation, self-affirmation, expressing intention to return to an earlier part of the text, wait/stop/slow down, expressing intention to use glossary, knowledge of grammatical structure and text organization, identifying vocabulary**, and **comments on vocabulary**. The strategies of **confirming comprehension** and **comments/suggestions on grammatical structure and text organization** in this study are found only in Pereira's study.

Differences of strategy use in this study and in other studies result from the way strategies are analyzed, that is, the objective(s) and depth of the analysis in each study. In addition, researchers may look for different specific information. This, in turn, may have an effect on the analysis.

The implications of the findings that the strategies in this study and in other studies appear to be similar and different will be discussed in Chapter Seven.

Discussions of the Findings in Relation to the Third Research Statement

This section discusses whether there is any difference in strategy use between the second and fourth year university students.

The findings showed that for the higher proficiency group (HPG), only the strategy of **association** had a statistically significant difference between the second and fourth year students, with the fourth year students using it more frequently than the second year students

The findings also showed that for the lower proficiency group (LPG), only the strategies of **reaction to the text content and to world knowledge and expressing confusion (content and vocabulary)** had statistically significant differences between the second and fourth year students. The lower proficiency fourth year students used **reaction to the text content and to world knowledge** more often than the lower proficiency second year students, but the lower proficiency second year

students used **expressing confusion (content and vocabulary)** more often than the lower proficiency fourth year students.

The purpose of this investigation was to find out whether a two-year time difference in the academic setting between the second and fourth year students would have any effect on different strategy usage. That is, the fourth year students in both the higher and lower level proficiency groups have more of an opportunity to learn English than the second year students, and that during this period of time, they might be able to acquire more reading skills than the second year students. However, the findings showed that there was not much difference in reading behaviours between these two groups.

Therefore, it can be concluded, for the second and fourth year students of higher and lower English language proficiency in the foreign language academic setting, that a two-year time difference in the foreign language academic setting does not play an important role in different reading behaviours because the second and fourth year readers in this study demonstrated similar reading strategies.

Another issue which might be related to this matter is age. The research in metacognition has found differences in the performance of older and younger children. However, the subjects in this study were all young adults studying at the university level in the same area of study.

Therefore, age might not make much difference in the performance of these two groups. Although there have been a number of studies with regard to metacognitive skills and comprehension monitoring skills among children, Baker (1989) points out that very little research has been done with regard to the connection between ages and comprehension monitoring skills during late adolescence and adulthood. In addition, Baker points out that the findings of studies which have been conducted so far have been inconsistent and sometimes contradictory. Besides, none of these studies used think-aloud as a technique to obtain subjects' verbal reports in relation to their thinking process while reading. Baker states that at present, firm conclusions cannot be drawn as a result of too little research aimed at this issue.

Individual Differences of Strategy Users

This section of Chapter Six discusses some individual differences in strategy use among 16 participants in this study.

Although this research focuses on two groups of subjects with different levels of English language proficiency, it would be inappropriate to ignore individual characteristics of reading behaviours found among these 16 readers. Although the 16 undergraduate Thai students shared

some common usage of strategies found in this study, there were also some individual differences among them on how they approached the text.

Although many studies have been conducted in comprehension monitoring strategy use in general, individual differences have also been acknowledged (Anderson, 1991). These individual differences were manifested by their verbal reports from the think-aloud and by different frequencies of the strategy usage by each participant, although some individuals might manifest certain reading behaviours more obviously than others.

Subjects In the Higher Proficiency Level Group

Kathy. Of all 28 strategies identified in this study, Kathy, a subject in the HPG who received the highest TOEFL scores, employed 14 strategies. Of 14 strategies used by Kathy, the strategy of **world knowledge** was used at the highest frequency: 43 times or 22.51% of her overall strategy usage. In fact, of 13 participants using this strategy in this research, Kathy was the one who used it most frequently.

The second most frequently used strategy by Kathy was the strategy of **rephrasing**: 35 times or 18.32% of her overall strategy usage. The third most frequently used strategy by Kathy was **translation**: 23 times or 12.04% of her overall strategy usage.

Questioning information in the text/noting discrepancies in the text/questioning world knowledge was another strategy used more frequently by Kathy than any other participants: 14 times or 7.33% of her overall strategy usage.

Of all 9 participants using the strategy of **reaction to the text content and to world knowledge**, Kathy was the participant who used this strategy more frequently than any others with the exception of Siri-aree.

Particular characteristics of Kathy in monitoring her understanding while reading an English expository text can be summarized as follows: Kathy approached the text by reading in long phrases, i.e., a clause or a sentence. In trying to understand the text content, she used the strategies of **rephrasing** or **translation** or both. Her way of translating and rephrasing showed that she translated and rephrased in longer chunks like clauses or sentences. This reflected how she processed her thoughts while reading in the way that she focused on the message of what the text was conveying and not on the meaning of each particular word. She also used the strategy of **interpretation of the text** so that the information in the text would make sense to her. Kathy possessed one of the advantageous reading behaviours: **world knowledge**; she used this capacity to its fullest advantage. She employed this strategy more often than any other

participant. One indication that Kathy was an active reader was her use of the strategy **reaction to the text content and to world knowledge**, by agreeing or disagreeing or criticizing information in the text. Her frequent uses of the combination of the strategies of **reaction to the text content and to world knowledge, world knowledge, and association** showed how frequently she interacted with the text. As a result of her summarization of the text, it can be concluded that she understood the text content very well.

Examples of how Kathy responds to the text:

Text (sentence 3): *But the most significant changes in mankind's diet have taken place only during the last two centuries.*

Subject:

But the most significant changes in mankind's diet have taken place only during the last two centuries. They say that the changes in mankind's diet have changed only during the last two centuries. In my point of view, I don't quite agree. It should have been sooner.. It should have changed sooner because [we] had eaten like this for thousands of years. The changes should have taken place not just the last two centuries. The changes should have taken place sooner than that. (Kathy 3)

In this example, Kathy read the whole sentence and repeated how she understood this sentence in Thai. She then interacted with the text [underlined statements] by stating her opinion that she didn't quite agree with the text. By gathering information in sentence 1, which stated that up to four thousand years ago, the main diet of mankind was much different from the present diet, and information in sentence 3, which stated that the changes in the diet only occurred two hundred years ago, Kathy responded to the text that in her point of view, since humankind's diet up to four thousand years ago was mainly wild plants and small huntable animals, the changes in diet should have taken place sooner than the last two centuries as stated in the text.

Siri-aree. Siri-aree, another subject from the HPG, employed 19 out of 28 strategies.

From Table 3, the strategy used with the highest frequency by Siri-aree was **reaction to the text content and to world knowledge**: 18 times or 18% of her overall strategy usage. Siri-aree did not use the strategy of **translation** and reported seven uses of the strategy of **rephrasing** or 7% of her overall strategy usage. As a result of her verbal reports revealed by her TOL and of frequencies of strategies, particular characteristics of her reading behaviours can be summarized as follows: Siri-aree read the text in broad phrases. Unlike the rest of participants in

both higher and lower proficiency, Siri-aree did not translate information she read and rephrased only seven times. Her reading behaviours as revealed by TOL can be categorized under the reading behaviour of *automaticity*. That is, as soon as she finished reading a segment of the text, she understood it right away and did not see the necessity of relaying information into Thai by either translating or paraphrasing. Instead, the TOL protocols showed that Siri-aree was a reader with critical reading behaviour, one of the behaviours of good readers as identified by Baker (1989). That is, she very often approached the text by rendering her opinions by agreeing, disagreeing, or criticizing the text, by using the strategy of **reaction to the text content and to world knowledge**. In fact, she used this strategy more often than any other participants in this study. As a result of her summarization of the text at the end, it can be concluded that she understood the text very well.

Examples of how Siri-aree responded to the text:

Text (sentence 6): *These changes have played a significant role in the epidemic of such chronic ailments as cardiovascular diseases and cancer, which have become the leading causes of premature death in the developed world.*

Subject:

These changes have played a significant role in the epidemic of such chronic ailments as cardiovascular diseases and cancer. O.K. So [they] have these types of diseases. Which have become the leading causes of premature death in the developed world. In the developed world is the first world. But I think that right now it's all around the world.

(Siri-aree 6)

After reading a clause in sentence 6, Siri-aree rephrased what the text says. She then continued reading the second clause of the sentence. After that, she identified the meaning of vocabulary *developed world*, which is called *the first world* by Thai people. She then reacted to the content of this part of the text (underlined statements) by saying that in her point of view, the changes in diet which are causes of chronic diseases have led to premature death not only in the developed world, but in countries all around the world.

Wattana. Wattana, another subject in the higher proficiency group, was the highest strategizer among 16 participants, employing 25 of the 28 strategies found in this study, the highest strategy user in this research.

Although the strategy with the highest frequency used by Wattana was **rereading**, there are some other interesting characteristics of Wattana's reading behaviours which are more noteworthy. Because Wattana, unlike other participants, is a reader engaging in a variety of strategies in responding to the text, he should be considered an active reader.

Wattana was among the participants who used the strategies of **reaction to the text content and to world knowledge** and **knowledge of grammatical structure and text organization** in the highest frequency. However, he also used the strategies of **monitoring comprehension, giving instructions to oneself/talking to oneself/asking and answering one's own question, comments on vocabulary, and comments/suggestions on grammatical structure and text organization** more frequently than other participants. Note that the strategies that Wattana used more frequently than other participants were the strategies employed with a low frequency by many participants. From his verbal reports revealed by the TOL, Wattana is a type of reader who regularly processes by talking to himself, asking himself and answering his own questions, and complaining and making comments or suggestions (to the writer) on grammar, text features, and vocabulary.

Below is an example of Wattana's responses to the text:

Subject:

Back to Nature? Umm.. the length of the text is quite long.
But the prints are too small. Looks like it's going to be
difficult to read. Why don't I try to read first? Back to
 Nature? Why do they have to put a question mark at the end
 of the title? Is it sarcastic? Who is *Aulikki Nissinen* and why
 don't they tell us who he is? But down here, they refer to
 Photo WHO, so it's probably about the World Health
 Organization. Umm... *Back to Nature. I'm going to come*
back to the title again later on. No! Maybe I can find the
 answer from the text. O.K. I'm going to start now. Wait,
wait! Let me read here. (Wattana 1)

These were verbal reports at the beginning of the think-aloud task by Wattana. Notice how often he made comments on the text and how he was talking to himself even at the beginning of the task.

Sulalai. Sulalai, another subject in the HPG, used 18 of 28 strategies found in this study. The main strategies Sulalai employed were **translation, rephrasing, rereading, expressing confusion (content and vocabulary), identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific).**

Sulalai was the subject who used the strategy of **expressing confusion (content and vocabulary)** more frequently than all others. She was one of only 8 subjects who used the strategy of **assessing one's understanding**. This strategy was utilized by the subjects in a low frequency rate.

An example of Sulalai's verbal responses to the text:

Subject:

Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America... Umm... Biologically, therefore, people have had little time to adapt to rapid changes in food which occurred first in Northern Europe and North America... Biologically probably is about nature something like that because biological is something about life... about biology, something like that. Therefore, people have very little time to adjust to food which has changed... that is, [people] have little time to adapt... that is to say, having to make a rapid adjustment. And only very recently in other areas. Huh? This sounds strange! Only very recently in other areas. Umm... I don't know [what this means]. Other areas... Oh I know! First I thought it was

about food. But in fact *other areas* is probably not in Europe. It probably is Asia or Africa. *Very recently* probably means just changing. That is to say, the changes just occurred in other parts of the world. (Sulalai 4)

(The *italic fonts* represent the subject's reading or rereading the text in English)

Juti. Juti, another subject in the HPG, used 18 from 28 strategies found in this study. Like many other participants, Juti used a decoding strategy of **translation** more often than any other strategies. And like most participants, Juti also used the strategies of **rephrasing, interpretation of the text, identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings), and expressing confusion (content and vocabulary).**

An individual characteristic of Juti's reading behaviours was that he was among the participants who were engaging in the strategy of **interpretation of the text content** at a high frequency: 12.96% of his overall strategy use.

Here are some examples of Juti's verbal responses to the text.

Sentence 10: *Nutritional excess in parallel with nutritional deficiencies (for instance iodine or iron) became a focus of research.*

Subject:

This [sentence] probably means that the fact that we ate too much... the rich during the 1950s and the poor... Why did those who eat too much had diseases and those who eat too little also had diseases... It's kind of suspicious and that was why this [issue] became a topic of study.

(Juti 10) (the strategy of **interpretation of the text content**)

Sentence 30: *Such a diet is very close to the actual diet in many developing countries.*

Subject:

This is like... *return to innocent.* (Juti 30) (the strategy of **interpretation of the text content**)

Tarin. Tarin was quite different from the rest of the subjects in the HPG. Among all subjects in both levels of proficiency, Tarin engaged in only 10 strategies, the fewest strategy user.

Tarin's several reading behaviours were accountable for her characteristic as a *passive reader* or a *reading nonstrategizer*. First, of only 10 strategies which she employed, there were 3 strategies which dominated other strategies. They are the strategies of **rereading** (44

times or 33.85%), **translation** (31 times or 23.85%) and **rephrasing** (26 times or 20%). These three strategies covered 77.70% of her overall usage of strategies.

Second, Tarin, was the only subject in the HPG who did not use any strategies in the category of *interaction with the text* (the strategies of **reaction to text content and to world knowledge, world knowledge, and association**), although these three strategies were more prominent in the HPG than the LPG.

Third, of all 16 participants using the strategy of **interpretation of the text content**, Tarin was one of 2 subjects who used this strategy only once. Again, this strategy was more prominent in the HPG (the frequency mean of 11.50) than in the LPG group (the frequency mean of 7.75).

Fourth, of all 7 participants using the strategy of **consulting glossary**, Tarin used this strategy more frequently than the other 7 subjects.

The strategy of **questioning information in the text/noting discrepancies in the text/questioning world knowledge** was used by every participant except Tarin.

An example of Tarin's verbal responses to the text:

Subject:

Comparison between this diet and the current United States diet, for example, show great differences in protein, fat, sodium, potassium and calorie intake. When comparing the diet of people in the past to the diet of American people nowadays... such as... umm... it shows many things which are different such as protein, fat, minerals, potassium, calories, something like that, which we eat. But the most significant changes in mankind's diet have taken place only during the last two centuries. But the most significant changes in mankind's diet have taken place only during the last two centuries. (Tarin 2-3)

(The *italic fonts* represent the subject's reading or rereading the text in English)

Tara. Tara used 19 of 28 strategies. Tara was the only participant in this study who did the think-aloud in English and therefore did not use the strategy of **translation**. Like most participants in this study, Tara rephrased information in the text after she read and she used this strategy more frequently than other strategies. What was interesting about Tara was that she was the only subject in this research who felt comfortable doing her think-aloud in English, she was the participant who used the

strategy of **interpretation of the text content** more frequently than all others (15.84% of her overall strategy use), and used the strategy of **world knowledge** (8.42% of her overall strategy use) more frequently than all others with the exception of Kathy. She also summarized the text regularly. Here are some of the examples of the verbal responses to the text by Tara:

Subject:

They focus on fat and protein. I think they want to warn us.

(Tara 5) (**interpretation of the text**)

Subject:

I think probably the main reason that they are prone to have is the new technology nowadays [which] can cause stomach

cancer. (Tara 16) (**interpretation of the text content**)

Nirand. Nirand, the last participant in the HPG, used 15 strategies. Nirand was the only reader in the HPG who employed the strategy of **translation** most frequently: 80 times or 41.88% of his overall strategy usage. However, unlike some subjects in the LPG, Nirand did not engage in repetitively fragmented translation and rereading. As the data showed, Nirand was the subject who only ranked 10th in the frequency use of rereading. In fact, he was the subject who spent the least time performing TOL task.

An example of Nirand's verbal responses to the text:

Subject:

When mankind was still young... When mankind was still young. Up to four thousand years ago... Approximately four thousand years ago. The staple diet imposed on us by Nature consisted of wild plants and small... Up to approximately forty years ago. Staple... staple... what does it mean? Diet means something about food? Imposed on us... I don't understand imposed. By nature consisted... Consist means consist. Wild plants... Consist of wild plants. And small hutable animals. This probably means that with regard to food in the past, we had probably eaten things like plants, vegetables in the forests and hutable animals.

(Nirand 1)

(Italic fonts represent the subject's reading or rereading the text in English)

Subjects in the Lower Proficiency Group

Pitchaya. Of all 28 strategies found in this study, Pitchaya employed 18 strategies. There are three strategies which Pitchaya employed at a higher frequency than all others: **translation, rephrasing, and rereading**. Pitchaya translated 136 times or 22.97%, rephrased 69 times

or 11.66%, and reread 260 times or 43.92%. Pitchaya also used the strategies of **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)** more than all other participants: 49 times or 8.28%. As a result of her TOL verbal reports and her overall strategy use, it can be concluded that the strategies of **translation, rephrasing, and rereading** were dominant strategies used by Pitchaya. The verbal responses from Pitchaya's TOL task and the findings showed that Pitchaya was the subject who engaged in reading, rereading, and translation (decoding) in short phrases the most frequently.

An example of Pitchaya's verbal responses to the text:

Subject:

When mankind was still young, up to four thousand years ago... Up to four thousand years ago... When mankind was still young... When. Mankind... Mankind. Was still young... While mankind was still young... this probably means in the past. Up to four thousand years ago... Up to... More than four thousand years ago... four thousand years ago... up to more than four thousand years. The staple diet imposed on us by Nature... Staple means... I used to know [its meaning]. The staple diet... The staple diet imposed on

us by Nature consisted... Imposed... The staple diet... Diet probably means... about food, being on a diet. (Pitchaya 1)
 (*The italic fonts represent the subject's reading and rereading in English*)

Anita. Another subject in the LPG is Anita, who employed 15 strategies. Of 15 strategies used by Anita, 7 were used a low frequency rate of 1 to 3. There are five strategies which were more dominant than other strategies which Anita used. She translated 28 times or 20.44%, rephrased 13 times or 9.49%, reread 46 times or 33.58%, expressed confusion on content and vocabulary 17 times or 12.41%, and expressed intention to keep on reading in spite of confusion 11 times or 8.03%. Considering the strategies which she used and their frequencies, Anita can be categorized as a reader who is a low strategizer in reading. Notice that she used none of the strategies under the category of *interaction with the text* at all (the strategies of **reaction to the text content and to world knowledge, world knowledge, and association**). In addition, she used the strategies of **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)** only twice--the lowest frequency rate of all 16 subjects.

An example of Anita's verbal response to the text:

Subject:

When mankind was still young, up to four thousand years ago, the staple diet imposed on us by Nature consisted of wild plants and small, huntable animals. Umm... When mankind umm... four thousand years ago. The staple diet imposed on us by Nature consisted of wild plants and small huntable...

Probably means mankind lived with nature, plants and small huntable animals. *Comparison between this diet and the current United States diet, for example, shows great differences in protein, fat, sodium, potassium and calorie intake. Comparison between this diet and the current United States diet, for example, shows great differences in protein...*

[I] still don't understand. Skip it. *But the most significant changes in mankind's diet have taken place only during the last two centuries.* Probably is the story about being on a diet. Let me continue reading. (Anita 1-3)

(The *italic fonts* represent the subject's reading and rereading the text in English)

Pim. Of all 29 strategies found in this study, Pim employed 18 strategies. The main strategies Pim used are **translation**--18 times or 11.04%, **rephrasing**--33 times or 20.25%, **rereading**--44 times or

26.99%, **expressing confusion (content and vocabulary)**--1.66%.

Of all 14 subjects who translated,. Pim was one of two subjects who used this strategy at the lowest frequency. Note that this strategy was used at a greater frequency among subjects in the lower language proficiency level.

Pim was also one of the only 3 subjects in the lower proficiency group who used the strategy of **reaction to the text content and to world knowledge**.

An example of Pim's verbal responses to the text:

Subject:

In countries with excess or emerging chronic diseases...

chronic diseases... problems, guidelines for healthy nutrition

include recommendations about fat intake. Well, I feel that

they emphasize too much on food. There are also several

[other] factors. (Pim 25)

Sandee. Sandee used 16 strategies. The main strategies which Sandee used were **translation**--55 times or 32.16%, **rephrasing**--19 times or 11.11%, **world knowledge**--14 times or 8.19%, **questioning information in the text/noting discrepancies in the text/questioning world knowledge**--13 times or 7.60%, **rereading**--16 times or 9.36%. Sandee was the subject in the LPG who used the strategies of **world knowledge** and **questioning information in the**

text/noting discrepancies in the text/questioning world knowledge most frequently. Sandee was also one of only 3 subjects in the LPG who used the strategy of **reaction to the text content and to world knowledge**. In addition, she used the strategy of **rereading** less frequently than any other subjects in the LPG. Sandee processed the text by showing several reading behaviours similar to most subjects in the higher proficiency groups such as the frequent use of **world knowledge, reaction to the text content and to world knowledge, and questioning information in the text/noting discrepancies in the text/questioning world knowledge**, and the low frequent use of **rereading**.

An example of Sandee's verbal responses to the text:

Subject:

For most individuals, this means eating less animal fat in all its forms like butter, processed food and so on. For each of the most people, this method seems like eating less animal fat in all forms which will be talked about, whether it is butter or other food process related to fat. Umm... Does only fat result in high calorie? I think carbohydrate also contributes to [high calorie]. Nowadays, we eat too much carbohydrate, especially bread. (Sandee 26)

Tanita. Of all 28 strategies found in this study, Tanita used 22 strategies, the second highest strategy user in this research. The main strategies used by Tanita were **translation--52 times or 19.19%**, **rephrasing--40 times or 14.76%**, **interpretation of the text content--14 times or 5.17%**, **rereading--67 times or 24.72%**, **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)--25 times or 9.22%**. Tanita was one of the 2 subjects who used the strategy of **interpretation of the text content** more frequently than all others with the exception of Tara.

An example of Tanita's verbal responses to the text:

Subject:

These changes... These changes. Have led... Have led. A much increased supply of protein-rich foods, and at the same time to an excess of animal fats. These changes have led to much increased apply of protein... apply of protein... protein-rich foods, and at the same time it excesses fats, therefore, we call... what is it... so-called saturated fat.

What is saturated fats? It is in the parentheses; therefore, it probably explains animal fats. [Information] in the parentheses might not be that important. The summary of the above-mentioned information is that the society has

changed. Therefore, food that people eat has also changed from food which was from nature in the past to fast food. But they have also tried to have protein-rich foods.

(Tanita 5)

Chana. Chana employed 22 strategies. The main strategies used by Chana were **translation**--18 times or 9.94%, **rephrasing**--10 times or 5.52%, **summarization**--11 times or 6.08%, **interpretation of the text content**--11 times or 6.08%, **rereading**--28 times or 15.47%, **expressing confusion (content and vocabulary)**--31 times or 17.13%, **expressing intention to keep on reading in spite of confusion**--13 times or 7.18%, **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)**--10 times or 5.52%.

Of the 14 subjects who used the strategy of **translation**, Chana was one of 2 subjects who used this strategy at the lowest frequency. In addition, he used the strategy of **summarization** more frequently than any other subjects.

An example of Chana's verbal responses to the text:

Subject:

These... These changes. Have played a significant role in the epidemic... Epidemic... this word sounds familiar. But I'm

still not sure [about its meaning]. *Such chronic ailment...*

There are a lot of vocabularies here which I haven't seen before. I can't guess the meanings at all. *Chronic ailments as cardiovascular diseases and cancer...* But I know the meaning of *diseases* and *cancer* which means cancer. This is about protein and fats which contribute to many diseases. (The *italic fonts* represent the subject's reading and rereading the text) (Chana 6)

Patsiri. Patsiri employed 20 strategies. The main strategies which she employed were **translation**--123 times or 29.43%, **rephrasing**--32 times or 7.66%, **rereading**--76 times or 18.18%, **expressing confusion (content and vocabulary)**--47 times or 11.24%, **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings)**--35 times or 8.37%.

Of the 14 subjects who used the strategy of **translation**, Patsiri was the subject who used this strategy more frequently with the exception of Pitchaya. She was one of 3 subjects who used the strategy of **rereading** more frequently than others. In addition, she was the subject who employed the strategy of **expressing confusion (content and vocabulary)** and **identifying meaning and forming hypothesis of meaning of vocabulary** with greater frequency than all others. Patsiri

was also one of 2 subjects who employed the strategy of **knowledge of grammatical structure and text organization** more frequently than other subjects who used this strategy. Patsiri was among the subjects in the LPG who engaged in repetitive and fragmented translation and rereading, more often than other subjects except Pitchaya.

An example of Patsiri's verbal responses to the text:

Subject:

When mankind was still young... When mankind was still young. Oh no, no, it's not when mankind was still young because I just saw [the phrase] *up to four thousand years ago*. Therefore, this clause probably means human beings at the beginning of human race. *The staple diet imposed on us...* I don't know what *staple* means. But *diet* means something about food... about consumption or being on a diet something like that. But I don't think it means being on a diet. It probably means something about food. Therefore, it's still O.K. even though I don't know the word *the staple*. *The staple diet imposed on us...* The diet has something to do with us. *By nature...* By nature. *Consisted of wild...* *Consisted* looks familiar. But I still can't remember what it

means. *Nature consisted of wild plants.* But *consisted* must be a verb for sure. (Patsiri 1)

(The *italic fonts* represent the subject's reading and rereading the text in English)

Yajit. Yajit, the last subject in the LPG, used 22 strategies. The main strategies which Yajit employed were **translation**-- 60 times or 20.27%, **rephrasing**--30 times or 10.14%, **rereading**--112 times or 37.84%.

Yajit was the subject who used the strategy of **rereading** more frequently than all others with the exception of Pitchaya. In addition, **expressing intention to use glossary** was used by her most frequently, compared to the other 6 subjects who used this strategy. Of all 10 subjects who used the strategy of **knowledge of grammatical structure and text organization**, Yajit was one of the 2 subjects who used this strategy most frequently. Yajit was among the subjects who did a repetitive reading, rereading, and translation.

An example of Yajit's verbal responses to the text:

Subject:

The same chronic diseases are also becoming a serious problem in developing countries. They talk about chronic again. I think I'm going to have to look it up so that I would

know its meaning in case they talk about it again. *Chronic* means chronic. [The subject look up the word in the dictionary.] *And the same chronic diseases are also becoming a serious...* These chronic diseases will become a serious problem. *In developing countries...* In developing countries. Huh, why are they talking about developing countries? *A fact that is hidden by the high prevalence of communicable diseases.* These diseases have become a serious problem in developing countries. *A fact that...* A fact that is hidden. *By the high prevalence of communicable...* This [clause] is probably a modifier. *Communicable...* *communicate* means communication. *Communicable diseases...* Oh no, that's not it... umm... *high prevalence of communicable diseases* [means] diseases which can be contracted, right? Let's just leave it like that. (Yajit 7)

(The *italic fonts* represent the subject's reading and rereading the text in English.)

CHAPTER SEVEN

Conclusions

This chapter summarizes all the findings in this study. It also divides groups into types of readers according to the frequency and types of strategies used, and the way the subjects processed the text. Then, it discusses its pedagogical and research implications and concludes with the study's limitations and suggestions for future research.

Summary of the Findings

Although the results suggest that target language proficiency does not have much effect on strategy use in general between groups of proficiency as indicated by the fact that all 28 strategies were used by readers of both groups, three strategies emerged as having significant differences in frequency between groups of proficiency. One reason which accounts for the much more frequent use of the strategy of **rereading** among the lower proficiency group (LPG) is because at least half of the subjects in this group process the text in small chunks. The reason may be due to their more limited English knowledge which effects their absorbtion of information and, therefore, they have to process the text in small chunks, believing that this type of text processing would help them understand the text better. This rationale coincides with more frequent occurrence of the

strategy of **expressing intention to return to an earlier part of the text** by the LPG.

Concurrently, another result demonstrates that the LPG, while using the strategies of **rereading** and **expressing intention to return to an earlier part of the text** more frequently, also used the strategy of **world knowledge** less frequently than the higher proficiency group (HPG). It is unlikely that lower proficiency subjects do not possess enough background or world knowledge, but that they are overwhelmed by information and busy trying to figure out the meaning of the text. Therefore, they have limited time to resort to effective strategies such as the strategy of **world knowledge** in order to assist them in better text comprehension.

The other three strategies which are sensitive to the comparison of the second and fourth year university students are (a) **reaction to the text content and to world knowledge**, with the lower proficiency fourth year subjects using it more frequently than the lower proficiency second year subjects, (b) **association**, with the higher proficiency fourth year subjects using it more frequently than the lower proficiency second year subjects, and (c) **expressing confusion (content and vocabulary)**, with the lower proficiency second year subjects using it more frequently than the lower proficiency fourth year subjects.

Both strategies of **reaction to the text content and to world knowledge** and **association** are classified in the major category of *interaction with the text*, which signifies that readers go beyond routine activities of understanding the meaning of the text and interact with the text. Notice that these two strategies were used less frequently by the second year subjects in both higher and lower proficiency groups. The strategy of **reaction to the text content and to world knowledge** demonstrates a critical reading behaviour when readers react to or criticize information in the text. The strategy of **association** indicates that readers associate their own personal experience to information in the text. An implication which accounts for this phenomena is that readers who have more academic and life experience have more advantage in applying this experience. In addition, since fourth year university students are more mature than second year students, they are more critical of information they encounter in their life and more willing to render their opinions.

With regard to the strategy of **expressing confusion (content and vocabulary)**, which was used more frequently by the lower proficient second year subjects, considering the fact that all the second and fourth year subjects in the lower proficiency group received comparable TOEFL test scores (437 - 463), there is no clear cut reason why this strategy received significant difference. It could be that the second year university

students, despite comparable TOEFL scores to the fourth year students, have encountered fewer foreign academic materials, and therefore, have more difficulty dealing with difficult texts. Another reason could be that the second year students have lower tolerance than the fourth year students when coping with difficult foreign materials. It could also be the combination of both that accounts for this significant difference.

Types of Readers

In Chapter Six, although patterns of reading behaviours are discussed, there are also individual characteristics in reading. This section in Chapter Seven defines the types of strategies used by readers in this study based on the way they process the text, the analysis of the strategies, and the frequency and types of strategies used.

Of all 28 strategies found in this study, the highest and the lowest numbers of strategies used by subjects in this study were 25 and 10, respectively. The mean was 18. The number of strategies used more than three times ranged from 5 to 17. The mean was 10.37. The frequency ranged from 94 to 592. Table 9 shows the number of strategies used by each subject, the number of strategies which are used one to three times, which is counted as low frequency usage, and the overall frequency of strategies (segments) employed by each reader. From Table 9, types of strategy users can be divided into five categories:

Table 9**Types of Strategy Readers**

Types of readers	Subjects	# of strategies	# of strategies (> 3 times)	Frequency
1. Diverse strategy readers	Wattana	25	17	260
2. Average strategy and longer chunks readers	Kathy	14	9	191
	Sandee	16	11	171
	Juti	18	8	104
	Pim	18	8	163
	Sulalai	18	11	181
	Siri-aree	19	9	94
	Tara	19	11	202
	Chana	21	12	181
3. Short chunks strategy readers with high frequency	Pitchaya	18	11	592
	Patsiri	19	14	418
	Yajit	21	12	296
	Tanita	22	14	280
4. Passive readers	Tarin	10	5	130
	Anita	15	7	137
5. Mixed strategy readers	Nirand	15	7	191

1. **Diverse strategy readers.** This type of reader uses a very high variety of strategies. Wattana is the only reader who fits into this category, using the highest number of strategies: 25 of the 28 strategies and 17 strategies more than three times, with the rate of occurrence of 260. One of the characteristics which distinguishes Wattana from readers in other groups is that he employed at least three strategies most frequently than other readers--**monitoring comprehension, giving instructions to oneself/asking and answering one's own question, and comments/suggestions on grammatical structure and text organization.** These strategies were not used by every reader. Most of the readers who used these three strategies used them infrequently.

2. **Average strategy and longer chunks readers.** The readers in this group still use a number of strategies although not as varied as the first one. They read text in longer chunks and did not engage in repetitive translation and rereading. Two of them did not use the strategy of **translation** at all. In particular, the strategies they used are considered good strategies as noted by a number of reading researchers. Often, they responded to the text by using the strategies of **world knowledge, reaction to the text content and to world knowledge, and association.** The overall number of strategies ranged from 14-21, and the number of strategies used more than three times ranged from 8-12.

The frequency of occurrence ranged from 94-202. The readers in this group are as follows: Kathy used 14 of the 28 strategies and 9 strategies more than three times, with the overall frequency of occurrence of 191. Sandee used 16 of the 28 strategies and 11 strategies more than three times, with the overall frequency of occurrence of 171. Pim and Juti each used 18 of the 28 strategies and 8 strategies more than three times, with the overall frequency of occurrence of 163 and 104, respectively. Sulalai used 18 of the 28 strategies and 11 strategies more than three times, with the overall frequency of occurrence of 181. Siri-aree used 19 of the 28 strategies and 9 strategies more than three times, with the overall frequency of occurrence of 94. Tara used 19 of the 28 strategies and 11 strategies more than three times, with the overall frequency of occurrence of 202. Chana employed 21 of the 28 strategies and 12 strategies more than three times, with the overall frequency of occurrence of 181.

3. **Short chunks strategy readers with high frequency.** This group of readers employed a number of strategies ranging from 18-22. The number of strategies used more than three times ranged from 11-14. The main characteristics of the readers in this group are that they processed the text in short chunks and used repetitive translation and rereading with a very high frequency of occurrence of 280 and 592 of the overall strategies.

4. **Passive readers**. This group of readers is considered to be narrow strategy users, employing a limited number of overall strategies, ranging from 10-15, with a restricted number of strategies used more than three times, ranging from 5-7. This group consisted of two subjects--Tarin and Anita. Tarin, in particular, is quite distinctive from any other reader in this study. Tarin used only 10 of the 28 strategies. Among these 10 strategies, 5 strategies were used at a frequency of only 1-3, with the overall frequency of occurrence of 130. For Tarin, there were only three main strategies which were dominant and covered 77.70% of her overall strategy usage: **rereading, translation, and rephrasing**. Anita used 15 of the 28 strategies and 7 strategies more than three times, with the overall frequency of occurrence of 137. Tarin and Anita used none of the strategies in the category of *interaction with the text* --the strategies of **world knowledge, reaction to the text content and to world knowledge, and association**.

5. **Mixed strategy readers**. This type of reader is a mixed strategy user. That is, the reading behaviours overlap those of readers in other groups. Nirand is the only reader who falls under this category. Nirand used 15 of the 28 strategies and 7 strategies more than three times, with the overall frequency of occurrence of 191. Unlike the readers in the short chunks strategy readers with high frequency group, Nirand did not engage

in repetitive translation, despite his frequent use of translation. Neither did he reread too often. Therefore, he cannot be placed under this group. In addition, he does not fit into the passive readers group, either, because, unlike this group of readers, he used the strategies of **world knowledge and reaction to the text content and to world knowledge** despite the same amount of number of overall strategies used as Anita (15) as well as the number of strategies used more than three times (7). Further, although he shared several reading behaviours with the readers in the average strategy and longer chunks group, he cannot be placed under this group because none of the readers in this group used **translation** at a very high frequency.

The reason for discussing the preceding section is to try to group readers into types according to the types and frequency of strategies used and the way they process the text although individual characteristics in reading may still vary.

Pedagogical and Research Implications

In Chapter Six, it is argued that the findings reveal that the main strategies used by readers at a high frequency in this study as well as other studies in the literature, at a high frequency, are similar.

One of the reasons for conducting this research is to discover whether there is any difference in strategy use between Thai students studying

English as a foreign language, ESL students, and the native speakers of English, taking into consideration that Thai language is very different from English. The results show that there are some similarities in strategy use between readers in this study and in other studies in the literature, particularly the high frequency main strategies used by readers. The implications of these findings point to a pattern of comprehension monitoring strategy use in reading that is not language specific. No matter what language readers speak, several strategies, particularly main strategies, are used by all readers of any language background. There are some similarities in using certain main strategies more often, and other strategies to a lesser degree to gather and integrate information. No matter what language readers speak, the way readers process the text seems to be universal phenomena. Different language background does not make one different in text processing.

Despite the above-mentioned arguments, there are some strategies pertaining only to this study. One new strategy, **translation**, occurs as a result of readers' reporting their thoughts in their native language. There are three more strategies which are used by the majority of readers in this study. They are the strategies of **knowledge of grammatical structure and text organization, identifying vocabulary, and comments on vocabulary**. The way Thai students have learned English in school may

account for the occurrence of these four strategies in this study which have not been identified in any other studies. In particular, the strategy of **translation** is used by most readers in this study. English is studied in the Thai academic setting as a foreign language. The majority of the Thai people use their native language to communicate at home, at school, and in the workplace. In general, English is taught through the medium of Thai language. It is likely that while trying to understand English texts, students have to transfer information into Thai. Another reason could be a result of the Translation Methods which may still exist as a teaching method at school in which students are taught to understand written English by relaying English information in Thai (although this method is not used at the university level). That is why translation occurs at a high frequency. Particularly if readers read in short phrases, there is a tendency to translate rather than rephrase the information in English.

The knowledge of grammar, text structure, and vocabulary is important in learning English. They are particularly important for EFL learners who are not familiar with the language and have to use every possible way to figure out meaning, including using knowledge of vocabulary and grammar to help speed comprehension. That is why the strategy of **knowledge of grammatical structure and text organization** occurs in this study and not in any other studies. In

addition, several strategies related to vocabulary such as the strategies of **identifying meaning and forming hypothesis of meaning of vocabulary (unspecific and specific meanings), expressing intention to use glossary, identifying vocabulary, and comments on vocabulary** are also utilized by the readers in this study.

There are some other strategies which were used only in this study but at a low frequency and by fewer than half of the readers-- **self-affirmation, confirming comprehension, wait/stop/slow down, comments/suggestions on grammatical structure and text organization**. Individual reading behaviours may account for the reason why these strategies are rarely found in other studies. As already stated in Chapter Six, although some patterns of reading behaviours are found in this study for both groups of proficiency, there are also specific reading characteristics pertaining to individual readers.

The findings suggest that acquired cognitive and academic abilities play important roles in reading. Although the two groups of readers were different in their English proficiency, they performed well in their academic study. This suggests that readers who have lower foreign language proficiency levels, but good literacy and academic abilities, are able to use their learning strategies to compensate for limited target language competence in applying a variety of reading strategies, with a

similar pattern of strategy usage to the higher language proficient readers, when reading an English expository text.

One of the comprehension monitoring strategies equivalent to the strategy of **world knowledge** in this study is identified by Randall et al. (1986) as *providing additional information from (1) academic or (2) personal experience*. It is also one of the comprehension monitoring strategies which signify that the reader goes beyond the routine literal rephrasing of the text to the stage where the reader interacts with the text “in a definite way” (p. 245). Randall et al. (1986) state that studies show that more proficient readers have a tendency to use the same strategies as less proficient readers, but are likely to use them “more flexibly, appropriately, and effectively” (p. 247).

Baker (1989) referred to the study done by Spring (1985) regarding the use of comprehension strategies of poor as well as good readers. One of the strategies referred to by Baker is *critical reading, reacting emotionally and critically to text material* (p. 8). Good readers, in Spring’s study, exhibit more frequent use of critical reading than poor readers. Spring’s definition of critical reading coincides with **reaction to the text content and to world knowledge** in this research which was used more often by higher language proficiency subjects than lower language

proficiency subjects. Block (1986) identified one of the comprehension monitoring strategies as *use of general knowledge and associations*:

The readers in this study used their knowledge and experience (a) to explain, extend, and clarify content; (b) to evaluate the veracity of content; and (c) to react to content. Responses were frequently in the reflexive mode... However, some readers used information from their own lives to clarify or extend ideas in the passages, and these responses were considered to be in the extensive mode. (Block, 1986, p. 472)

The use of **world knowledge** and **reaction to the text content and to world knowledge** supports past research that learners who engage in these strategies are active readers, interacting with the text while reading. These strategies were used in a productive fashion helping readers to more fully understand the meaning of the text. These types of reading behaviours demonstrate that readers are not merely passive receivers of the message in the text, but apply their world and background knowledge as well as use critical reading to evaluate the truthfulness and to expand information in the text in order to understand the text. These reading behaviours should be encouraged in the classroom. Eskey (1973)

encourages readers to develop the strategy of reading critically, “to weigh and judge an author’s work on the basis of its merits” (p. 181).

The tendency to process reading in short or fragmented phrases with too frequent repetition, as if equal importance is given to almost every word in the text, proved to be an inefficient strategy. In doing that, it may well be that these types of readers do not have an opportunity to look at the whole picture, but instead concentrate on each particular word or vocabulary, or focus on small pieces of information. It seems that knowing the meaning of each word is important to them, although perhaps reading the whole sentence and trying to understand the main point of each sentence is more crucial to their understanding. Focusing too much on word-decoding may cause second language readers to process the text “in a slow and laborious fashion” (Murtagh, 1988, p. 13), and consequently could cause this type of reader to ignore important and useful cues existing in the text. These cues are important because they “help reduce memory load and speed up comprehension” (Murtagh, 1988, p. 13).

Finding out the meaning of every word in the text is highly unlikely for readers of a foreign language and should not be encouraged. As a result of limited target language proficiency, however, some students may be overwhelmed by difficult vocabulary and complex sentences and, therefore, resort to reading and decoding in short phrases.

The findings about these types of reading behaviours in this study coincide with a study done by Carol Hosenfeld (1977). As a result of the analysis of the self-report data, Hosenfeld (1977) describes the following strategies as more characteristic of successful than unsuccessful readers.

Generally, the successful reader keeps the meaning (context) of the passage in mind as he reads; he reads (translates) in broad phrases; he skips unknown words and uses the remaining words in the sentence as clues to their meaning; he looks up words in the back of the book only as a last resort; usually he is successful with a proposal solution to his problem; after several unsuccessful attempts to decode a word, he lets the word go; he looks up words correctly in the glossary; and he has a positive self-concept as a reader.

(Hosenfeld, 1977, p. 121)

Hosenfeld also describes the reading behaviours of a unsuccessful reader in her study:

David, on the other hand, loses the meaning of sentences as soon as he decodes them; he reads (translates) in short phrases; he seldom skips words as unimportant since he views words as “equal” in terms of their contributing to total phrase meaning...

(p. 120)

In another study done by Hosenfeld (1979), before the subject Cindy was given instructions of more appropriate reading strategies, “translated word-by-word, forgot the meaning of sentences as soon as she decoded them, and guessed the meaning of new words without regard to context, i.e., as though they existed in isolation” (Cohen & Hosenfeld, 1981, p. 297).

Some of the comments made by Dubin and Bycina (1991) coincide with some reading behaviours of several subjects in the lower language proficiency group in this study.

The implication of the interactive model for reading instruction is that practice in both bottom-up and top-down strategies must be provided. This is particularly necessary in the case of second language learners who often fail to comprehend written material. Some, because of their previous training in translation, plod through the text from beginning to end in a laborious word-by-word fashion, pausing often to consult a dictionary for lexical items that they do not know. Such students rely on bottom-up processing and fail to take advantage of previous knowledge and prediction. Contrary to their expectations, their slow pace and the frequent interruptions tend to short-circuit understanding rather than facilitate it. (p. 198)

Research has also proved that this is not an efficient reading strategy and may even be counter-productive (Cohen & Hosenfeld, 1981; Dubin & Bycina, 1991; Hosenfeld, 1977; Loew, 1984; Murtagh, 1988).

Students should be informed that not every word is of equal importance and that it is not necessary to know the meaning of every word in order to comprehend the foreign text. They should be made aware that the strategy of translating word-by-word should be avoided. Paying attention to the message conveyed by the text is more important. The strategy of rereading is generally helpful in the case of loss of connection or refreshing memory. However, repetitive rereading, particularly in short chunks, like fragmented translation, is not beneficial to readers. Since readers focus on short and fragmented pieces of information, they tend to lose information easily because pieces of information are disconnected. Viewing the text in longer chunks, such as clauses or sentences, should be encouraged more.

Interpreting the text, such as drawing inferences, forming hypothesis or drawing conclusions, as well as using background knowledge in interacting with the text, proved to be helpful in enhancing their understanding of the text for both students of higher and lower proficiency. Loew (1984) advocates encouraging readers to connect ideas in the text while reading “in order to help develop cause and effect

relationships” (p. 302). At the same time, Loew also cautions against the reading behaviour of “dwelling on isolated words which may be ultimately unimportant in comprehending the text” (p. 302).

The researcher suspects that subjects who tend to read in fragmentation are likely to lose the meaning of information upon decoding it and have more difficulty in connecting ideas throughout the text. A suggestion on this issue is that teachers need to revise the instruction of decoding the meaning of foreign texts, find appropriate methods to develop and enhance automaticity, and encourage the use of making connections of ideas throughout the text, interpreting the text, and using background and world knowledge to enhance reading comprehension.

The think-aloud in this study also revealed that knowledge of vocabulary played a role in foreign language reading comprehension and that the subjects in this study, during their reading process, paid much attention to vocabulary as demonstrated by several monitoring strategies related to vocabulary. Research also has shown that possessing a sound knowledge of vocabulary is undoubtedly essential to successful reading (Hague, 1987; Kasper, 1993; Koda, 1989; Nagy, Herman, & Anderson, 1985; Zvetina, 1987), particularly second/foreign language reading. The protocols revealed that some of the misunderstandings about the information in the text were due to lack of sound knowledge of vocabulary

used in different contexts. In other words, many of these subjects had limited exposure to the natural use of vocabulary in different contexts or situations. A large number of students, when acquiring foreign language vocabulary during their childhood, learn it in a limited context. Hague (1987) explains that one of the reasons is an inadequate training in vocabulary, partly due to their previous confined stories with controlled vocabularies (Brooks & Jerrolds, 1980, cited in Hague, 1987). Therefore, even when foreign language learners have increased their reading as their education progresses to a higher level, their knowledge of vocabulary meanings is still limited. Another important factor is that they are rarely exposed to outside reading, which can help them acquire their vocabulary knowledge in different contexts. In addition, other language skills of these readers such as speaking, listening, and writing are also limited in the academic setting, as opposed to the native language and ESL environments.

According to Hague (1987):

As the students advance to the higher levels of language learning, vocabulary acquisition becomes more like vocabulary acquisition in L1. The student must do more than simply learn a new label for a known concept: the student must also acquire new concepts. (p. 218)

Traditionally, foreign language teachers have used reading class for the sake of language instruction such as teaching grammar and vocabulary. This type of teaching orientation is noted in textbooks containing short reading passages and a number of language exercises (Martino & Block, 1992).

Recently, as a result of a realization that the traditional instruction did not enhance reading comprehension because it resulted in a low degree of decision-making by readers, there has been a need to change this trend to a focus on reading and literacy skills to enhance reading comprehension (Martino & Block, 1992). One of the factors which could help learners practice reading ability is extensive reading. “Getting students to read a lot not only expands their fluency in reading, it also improves their overall reading ability” (Martino & Block, 1992, p. 19).

One implication resulting from findings in this study is to expose learners in a foreign language setting to natural reading outside the classroom so that they would be more familiar with new concepts and contexts. This should be done from childhood or as soon as learners are able to grasp the syntactic structure of the target language and should not be postponed until learners reach their higher education, because possessing sound knowledge of vocabulary is a gradual and accumulative process. Learners who are more exposed to outside reading and tend to do extensive

reading have certainly accumulated vocabulary knowledge used in different contexts than learners who are confined to limited academic reading. A large number of words have different meanings, some of which are quite distinctive, depending upon the reading context. Some meanings depend on the reading context whereas some are quite different from one another. Learners must know various meanings of each word form. (Grabe, 1991). Extensive reading is an important step leading to the accumulation of sound vocabulary knowledge.

Students need to read extensively. Longer concentrated periods of silent reading build vocabulary and structural awareness, develop automaticity, enhance background knowledge, improve comprehension skills, and promote confidence and motivation. In short, students learn to read by reading. (Grabe, 1991, p. 396)

One of the most important suggestions in reading is that foreign language learners should read extensively. It should be the educational policy to encourage these learners to do more outside reading in order to expand their reading comprehension, gradually accumulating vocabulary which has different meanings in different contexts, familiarizing

themselves with grammatical structures and different types of text genre, and eventually reaching the automaticity level.

One of the essential factors in comprehension monitoring strategies is to teach readers to develop their metacognitive awareness. Three important components in the metacognitive awareness in reading tasks are to be conscious of what to study (task awareness), how to read effectively (strategy awareness), and how to evaluate the outcome (performance awareness) (Wade & Reynolds, 1989). These three components are key factors to successful reading.

Limitations of the Study

There are several limitations in this study. First, although the TOL technique used in this study has provided fruitful information to the researcher regarding how students monitored their understanding while reading an English expository text, and what types of problems or difficulties were hindrances to their understanding and how they solved problems, it might not provide a complete picture of their thinking process.

The number of the subjects in this study--16--was relatively small due to the nature of this type of research which prevented the researcher from using a large number of subjects. Therefore, any generalization must be done with caution.

Due to unavailable methods of assessing reading in the first language (Thai), this study did not measure the subject's native language reading ability. It is not certain whether such assessment exists in Thailand. However, an attempt was made to collect subjects who had comparable academic background and performance.

Despite the usefulness of the methodology used in this study, the analysis of the 16 verbal reports from the TOL technique was extremely time-consuming. In addition, the study was conducted in Thailand and, therefore, all subjects except one naturally chose to verbalize in their native language. Since the research is written in English, however, a large quantity of the data had to be translated into English. Again, this was very time-consuming. However, future research could be conducted by using a small number of subjects and using TOL as a tool to diagnose their reading problems; helping them to adopt more appropriate comprehension strategies.

Suggestions for Future Research

An expository text was used in this study. Future research may attempt to use different genre of text or to compare expository text with a text of different genre.

Think-aloud, which is considered an introspective technique, could also be used in conjunction with retrospective reports, which could render

more in-depth information to researchers about readers' processing of the text. Fitzgerald (1995) supports this idea, suggesting using videotaped TOL verbal reports from readers together with their retrospective interviews.

Although the product of understanding, as might be measured by tests such as multiple-choice or cloze exercises, was not the focus of this research, an assessment of the subjects' reading comprehension (i.e, upon completion of the TOL task), using different types of tests, might have helped the researcher gain a better picture of the subjects' reading comprehension. It would be useful for future research in reading to use both reading process techniques such as TOL and product-oriented techniques such as multiple-choice or cloze tests in the same study. Future research could assess two groups of homogeneous subjects who have good academic performances but are at different levels of foreign language proficiency. If possible, subjects' native language reading ability should also be assessed. By using TOL, future research will be able to find out whether there are any different or similar reading patterns between these two groups. Concurrently, multiple-choice and/or cloze tests should also be used to assess readers' reading comprehension. By gaining information of both comprehension monitoring strategy use (process) and reading comprehension (product), future research will be able to state, with more

assertion, the impact of target language competence, as well as learners' first language reading ability, cognitive and academic strategies, on ESL/EFL reading comprehension.

This research used the second and fourth year university students as subjects, and attempted to discover whether the two-year time difference in the university would render differences in strategy use between these two groups. However, since these subjects were only two years apart, the findings demonstrated that there was not much difference. Future research may try to compare comprehension monitoring strategy use between high-school students and fourth year university students or graduate students. Since not much research has been done in late adolescents or young adults, focusing on this issue would help expand the research in this area in reading.

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Appendix A

Citations of the Nine Articles and Sample Articles

**Nine Articles in the Passage Selection Procedure and Three
Sample Articles in the Practice Sessions**

1. An article on Canada's Parliament Buildings.
2. Caldwell, M. (January, 1994). Good Things in Small Packages. Discover, p. 48.
3. An article on Saskatchewan Wheat.
4. Faber, S. (January, 1994). Ants and Their Antecedents. Discover, p. 63.
5. Nissinen, A. (November, 1988). Back to Nature. World Health, pp. 4-5.
6. Loe, H. (January-February, 1994). The Smile - a Global Language. World Health, 1, p. 30.
7. Danziger, R. (March, 1988). Patterns of Behaviour. World Health, p. 13.
8. Diekstra, R. (November, 1988). Keep in Touch. World health, pp. 31-32.
9. Filho, W. L. (November, 1988). Health on the Curriculum. World Health, p. 18
10. Romer, C. J. (January-February, 1993). Violence: A Preventable Disease. World Health, 1, p. 4
11. Henderson, A. S. (March-April, 1994), Coping with Bereavement. World Health, p. 25.
12. Drinking and Driving - A Bad Mix. World Health, November, 1988, p. 18

Appendix B
A Written Description and Explanations of
the Procedures During the Orientation Sessions

**A Written Description and Explanations of the
Procedures During the Orientation Sessions**

Dear Participant:

My name is Adisra Katib, an English lecturer at Chulalongkorn University Language Institute. This research is part of my doctoral dissertation at the University of Victoria, Canada, about comprehension monitoring strategies used by Thai students when reading in English.

This research focuses only on Thai undergraduate students. The researcher has selected the students from the Faculty of Communication Arts, Chulalongkorn University as subjects in this research.

‘Comprehension monitoring strategies’ in Thai means strategies in understanding. In this research, the researcher would like to know how Thai students monitor their understanding while they read a piece of material (English article, text or book) during the time that they understand the material as well as when they have problems in comprehension and how they solve problems.

Difficulty in understanding the material being read are caused by many factors. The researcher is interested in knowing these problems. In addition, the researcher is also interested in knowing what readers are thinking as they read the material. The thoughts which occur during the reading process could be relevant to the content of what they are reading or could be anything which is related, directly or indirectly, or any thought which occur at that time.

However, since readers' thoughts are the things which occur inside the head of readers (invisible to the outsiders). Therefore, there has to be a method to relay these thoughts to the outsiders - in this case - to the researcher. The method that the researcher will be using is called 'think-alouds.' Think-alouds can be translated verbatim in Thai as 'think aloud.' It means to transfer the thinking which occurs inside the head of readers into verbal reports in order that the researcher would be able to gain access to the thoughts which occur inside the head of readers as readers are reading the material. This also includes the monitoring of comprehension, any thoughts which occur at that time, as well as individual behaviours during reading.

Appendix C

The Instruction of The Think-aloud task

The Instruction of The Thinking-aloud Task

You will be asked to read a passage “Back to Nature.”

Assume that this is a reading passage that you have to understand just like when you are assigned by your teacher to read an article and do assignments. I would like you to do exactly as you always do when you read the text. Only this time, while you read the text aloud, you should also express all your thoughts about your understanding of the text. You may use Thai or English or mix them both. This is not an English test nor a reading test. The reason why I ask you to do this is because I would like to know how you go about figuring out the meaning. Therefore, please be as much aware as you can of your thoughts while you are reading and express your thoughts loudly. However, do not attempt to analyze your behaviours. Just say what you are thinking.

And remember that there is no right or wrong way of expressing your thoughts. The purpose of this study, as I mentioned earlier in the practice session, is to find out how Thai university students figure out the meaning of English language reading passages. After finishing reading the

passage and completing verbalizing your thoughts, I would like you to summarize the passage. You can spend as much time as you need. Here are two dictionaries: one is English - Thai, and the other English -English. Whether you will use the dictionary or not is totally up to you. There is no requirement in using the dictionary. Please speak loudly enough so that your voice can be recorded. Please also note that when you do the reading and/or rereading, you should read and/or reread loudly. Do not do it silently.

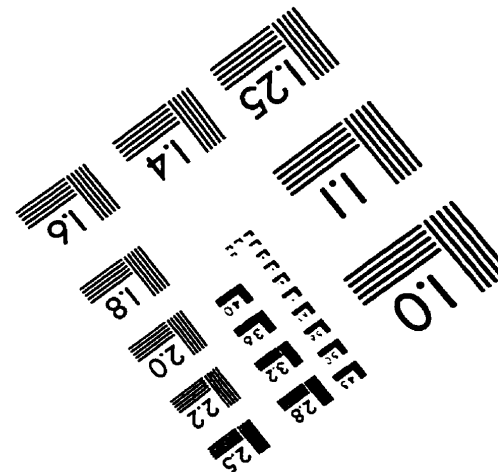
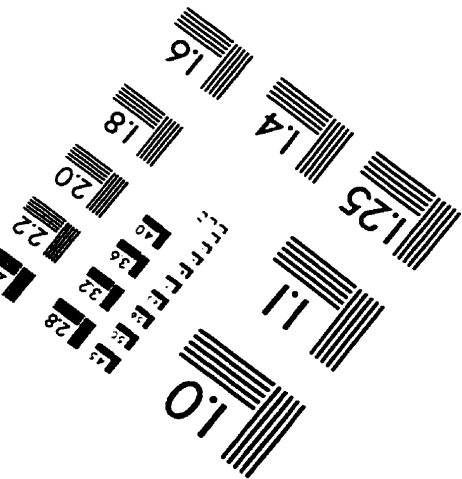
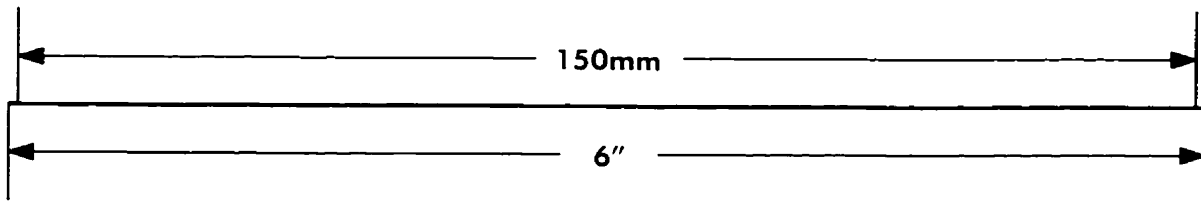
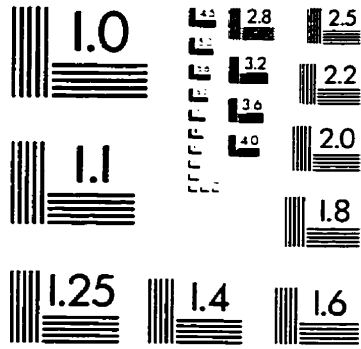
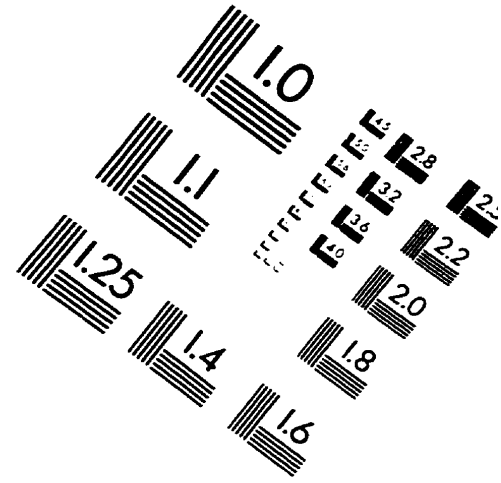
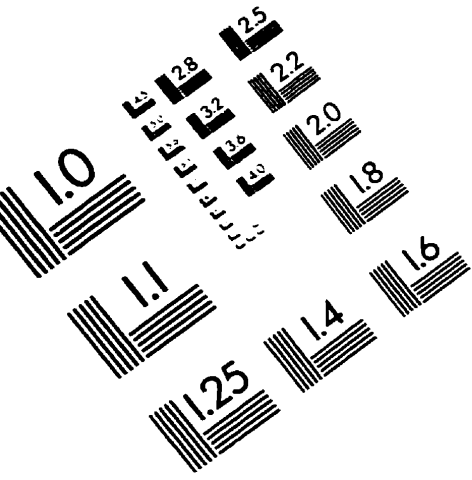
Appendix D
Assistant Professor Dr. Supanee Chinawong's
Comments on the Researcher's Translation
of the Data from Thai to English

Assistant Professor Dr. Supanee Chinawong's Comments on the Researcher's Translation of the Data from Thai to English

The text of this nature is quite difficult to translate. It is an oral style full of fillers, repetitions, hesitation markers and semantically meaningless words. The speakers quite often change their minds and try to make adjustments or additions to clarify or elaborate their thoughts.

The researcher, who is the translator, therefore, has to deal with fragmented, unstructured discourse with no clear unit of the so-called "sentence." The task is made more difficult as the Thai language has no markers for sentence boundaries as in English. Besides, the use of code-mixing by the subjects might be an obstacle to the task of translation. Nevertheless, the researcher has successfully managed to produce an accurate, natural and legitimate translation with an appropriate style. The translation communicates the precise meaning as well as the cultural elements of the original discourse.

IMAGE EVALUATION TEST TARGET (QA-3)



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