

**EST Students and Vocabulary Learning Strategies:
A Preliminary Investigation**

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ABSTRACT

Vocabulary learning strategies for the present investigation have been defined as “any set of techniques or learning behaviours, which EST students reported using in order to discover the meaning of a new word, to retain the knowledge of newly-learned words, or to expand their knowledge of English vocabulary”.

The present investigation is a preliminary study of vocabulary learning strategy use of students learning English for Science and Technology at Suranaree University of Technology. It has been designed to explore vocabulary learning strategies reported being employed by EST students. No variables have been taken into consideration. The data provided by 133 students learning English at Suranaree University of Technology, Nakhon Ratchasima in term 3/2002. The subjects of the study were sampled on the basis of convenience and availability. An open-ended strategy questionnaire was used as the main instrument for the data collection. The data obtained were analysed qualitatively in response to the purpose of the investigation.

The findings of the research show that three different emergent categories have been reported which include 1) the strategies to discover the meaning of a new word; 2) the strategies to retain the knowledge of newly-learned vocabulary items; and 3) to expand their knowledge of vocabulary. The first category comprise 10 individual strategies, the second category comprises 11 individual strategies, and the third one 10 strategies respectively.

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CHAPTER ONE

BACKGROUND TO STUDY

1.1. Introduction and Purpose of the Chapter

This chapter is an introduction to the present investigation and provides both a background and a context for the research work. The ensuing sections cover the terms used in the context for the present investigation; research objectives; and finally the expected outcomes. The chapter concludes with an outline of the research.

Over the past two decades, much research in the field of language learning and teaching has looked at the relationships between characteristics of language learners and their language performance. The priority of the investigation, especially in the 1980's, seemed to focus on how language learners dealt with their target language learning. Very often, the dichotomous term used to describe language learners is either 'good/poor' or 'successful/unsuccessful'. Many researchers have investigated a series of factors basically hypothesised to have a relationship with how these language learners go about language learning, especially a foreign language. These factors include learner's foreign language experience, gender, field of study, status of the target language, or ethnicity. These early investigations inspired some researchers in the field to attempt to identify what language learners, especially those who are 'good' or 'successful' actually do when they learn a foreign language. The first attempts to scrutinise such good learner behaviours which were empirically evidenced, were carried out by Stern (1975), and Rubin (1975). Shortly after the lists of characteristics of good language learners had been proposed by both Rubin and Stern, more researchers started to turn their attention to investigate learning strategies of good language learners.

Examples are Politzer (1983), Chesterfield and Chesterfield (1985), O'Malley et al (1985); Ramirez (1986), Chamot (1987), Oxford (1989), and more recently Campbell (1990), Embi (1996), Ely (1998), Halbach (2000), Davis-Wiley (2000), Intaraprasert (2000, 2003), and Markham (2001).

An initial review of available literature and other research materials appear to reveal that much of the research into language learning strategies has been carried out with native speakers of English learning a foreign language, or non-native speakers of English learning English as a second language (ESL) especially in the United States of America. A small amount of research has been carried out with language learners learning English as a foreign language (EFL), such as in the context of Thailand. To date, a few research works have been carried out with Thai students in terms of their language learning strategies, and a small amount of research has been carried out to investigate language learning strategy use by Thai students studying at the tertiary level. It also appears that the majority of the subjects of these few investigations were students majoring in English. Examples are Sarawit (1986), Mullins (1992), Torut (1994), and Lappayawichit (1998). The use of language learning strategies by English major students or other successful language learners were the focal point of these studies. However, the latest available research carried out with Thai students whose major subject is not English, has been conducted by Intaraprasert (2003). This investigation has been the only empirical research carried out exclusively to investigate how unsuccessful and successful language learners employ out-of-class or classroom-independent language learning strategies so far.

With regard to vocabulary learning strategies, up to present, very few empirical research have been carried out exclusively to investigate what types of learning strategies students employ in order to deal with learning foreign language

vocabulary (e.g. Stoffer, 1995; Schmitt, 1997; Kudo, 1999; Gu and Johnson, 1996; Gu, 2002). This has been pointed out by Schmitt (1997, p. 199) "...-vocabulary learning strategies- has attracted a noticeable lack of attention." In the context of Thailand, no available empirical research has been carried out exclusively to investigate how university students particularly those who are science-oriented deal with new vocabulary items. Since science-oriented have to deal with English for Science and Technology and reading seems to be the dominant skill as pointed out elsewhere in Intaraprasert (2000). Consequently, vocabulary has played an important role in their English language learning. The present investigation aims to fill this gap. The researcher decided to undertake a preliminary exploratory investigation which has been designed to examine types of strategies university students report employing in order to deal with new vocabulary items based on an open-ended questionnaire and a semi-structure student interview. This investigation is descriptive-interpretative in nature rather than confirmatory, hypothesis-testing, or as termed by Skehan (1989) and Larsen-Freeman and Long (1991), it employs the 'research-then-theory' rather than the 'theory-then-research' format (cf. Graham, 1997). To put it simply, this investigation is not intended to reconfirm any theories or hypothesis about students' use of language learning strategies in order to acquire new foreign vocabulary, that is, English. Rather, it has been designed to examine types of vocabulary learning strategies of students who study English for Science and Technology, specifically at Suranaree University of Technology in Nakhon Ratchasima Province, Thailand.

1.2 English at the Tertiary Level

The new National Education Curriculum, which was implemented in 2002, is based on the 1997 Constitution of Thailand, which stipulates that all Thai citizens have an equal right to 12 years of free education (Wongsothorn, 2003).

With regard to the teaching of English, in 1996, English was made compulsory for all primary pupils from Primary 1 onwards. The purpose of this revised proficiency-based curriculum was to provide Thai students with an opportunity to continue their English learning without interruption and to facilitate their life-long learning (Ministry of Education, 1996). At the tertiary or higher education level, English may be part of the Faculties of Arts, Humanities, Science, or Social Science depending on the organisational arrangements in each institution. According to the new policy on English Instruction of Liberal Education (Ministry of Education, 2000), at least 12 credits are required instead of six in general English and the other six in English for academic or specific purposes, as required formerly. In the projected English curriculum at the higher education level, emphases will be placed on independent work, autonomous learning, innovations and new technology in ELT. Examples are self-access learning, performance standards of general English as well as English for academic or specific purposes. This would lead to the first English curriculum being commonly accepted and implemented in every university in the country, both private-run and state-run. According to Wongsothorn (2003), the 1996 and 2001 English curricula can therefore be viewed as a major paradigm shift from English as an elective to English as a compulsory subject. With the official announcement of the language policy of the Ministry of Education, then the Ministry of the University Affairs, English is now placed at the forefront of national intellectual development together with IT skills.

1.3. Research Objectives

The present investigation aims at understanding how language learners learning English at Suranaree University of Technology approach new vocabulary items, through an investigation of language learning strategies (see Chapter 2,

Section 2.2, for the definition of vocabulary learning strategies for the present investigation). It is intended to examine and explore the types of vocabulary learning strategies reported by EST students. The specific aims of the present investigation is to explore the types of vocabulary learning strategies which language learners reported employing.

1.4. The Expected Outcome

As this is the first known research to investigate vocabulary learning strategies employed by language learners learning English at Suranaree University of Technology, one outcome will be to identify and explore the types of vocabulary learning strategies reported being employed by these language learners. The expected outcomes will correspond to the research question. The findings will reveal the types of vocabulary learning strategies, creating a clear picture of the strategy use of the research population for the present investigation.

1.5. Outline of the Research Report

In order to achieve the research objectives, the researcher first reviews the past research on, and related materials about, language learning strategies, especially vocabulary learning strategies (VLSs), and research methodology which contributes to the present investigation. This can be seen in Chapter 2 which includes a literature review on the work of different researchers, e.g. Cohen (1987); Weaver and Cohen (1997); Cook (n.d); Schmitt (1997); and Lawson and Hogben (1996). The chapter summarises how vocabulary learning strategies are defined and classified by different researchers. Some research works on vocabulary learning strategies carried out with foreigners which contribute to the present investigation are presented.

Chapter 3 discusses some general principles of a research design which applies to the present investigation. It discusses the theoretical framework of the

research, as well as the research questions for the present investigation. This is followed by the discussion about sampling and the rationales behind the choice of subjects for the investigation and the characteristics of the research population. The last part of this chapter deals with the data collection procedures and how the data obtained are reported, analysed, and interpreted.

Chapter 4 describes and discusses the results of the research findings of the present investigation in terms of students' vocabulary learning strategy use which is generated to be a Vocabulary Learning Strategy Inventory (VLSI)

Finally, Chapter 5 summarises the main findings of the present investigation in response to the research question, including discussions of the research findings and implications for the teaching and learning of English for language learners at Suranaree University of Technology. The contributions of the present investigation to the related areas are preceded by the presentation of the limitations of the present investigations and proposals for future research.

1.6. Summary

In this chapter, the researcher has given a description of the background of the investigation in an attempt to put the study in context. This was followed by a brief overview of the instruction of English at the Tertiary Level. Then, the research objectives, and the expected outcomes of the present investigation are briefly discussed. Lastly, the outline of the research report is concluded.

CHAPTER TWO
REVIEW OF RELATED LITERATURE
AND RESEARCH ON VOCABULARY LEARNING STRATEGIES

2.1. Introduction and Purpose of the Chapter

In recent years, research on language learning strategies has experienced tremendous growth and many researchers of the field have come to the most enduring conclusion that a variety of language learning strategies have the potential to facilitate language learning (Oxford, Lavine and Crookall, 1989; Nyikos and Oxford, 1993; MacIntyre and Noels, 1996). According to Carroll (1977), learning a foreign or a second language requires considerable effort. It can be a struggle for learners to find ways which are suitable and effective for themselves. Learning a foreign language can therefore be difficult and frustrating. MacIntyre and Noels (1996) suggest that the effort in finding such ways may help learners to comprehend, and retain knowledge of the target language, whether they are learning inside or outside a classroom setting. Concluding from the language learning research, Pearson (1988) suggests that individual learners must be consciously prepared to invest a great deal of their own time and energy in second language learning, and that learners must want to become responsible for their own learning.

As can be seen in this chapter, many of the initial studies of language learning strategies were directed at defining learning strategies and developing taxonomies that could be used to classify them. Examples are Stern (1975), Rubin (1981), Carver (1984), Ellis and Sinclair (1989), Oxford (1990), O'Malley and Chamot (1990), and Coleman (1991). Recently, interest in language learning strategies has been focused on the relationships between learner characteristics and success in language learning

(Bialystok, 1981; Ehrman and Oxford, 1989; and Gradman and Hanania, 1991). The learner characteristics which relate to the success of second or foreign language learning include language learning aptitude, attitude and motivation, personality variables, socio-cultural variables, language practice and learning strategies. Besides the learner characteristics mentioned above, successful language learning may also relate to the characteristics of the learning situation such as length of exposure to the target language or the teaching methods. Further, another major area of second or foreign language learning research is on the complex relationship between the learner specific language learning behaviours or strategies, and the ultimate success of these behaviours or strategies in language learning (Bacon and Finnemann, 1990). That means, many researchers who are interested in language learning strategies tend to pay more attention to identifying the strategy use of successful language learners (e.g. Rubin, 1975; Bialystok, 1981; and O'Malley et al., 1985).

A number of researchers have examined language learning strategies employed by language learners learning a foreign language, mainly English, in different contexts in different parts of the world, whether learning English is regarded as a foreign language (EFL), or as a second language (ESL). Some researchers have also examined language learning strategies employed by native speakers of English learning a foreign language such as French, German, or Russian. Consequently, many of these researchers have come up with different findings which they have used to define and classify language learning strategies.

As this chapter is the beginning of an investigation of vocabulary learning strategies, the researcher attempts to locate the present investigation in the context of previous research and authors' opinions. In other words, the researcher attempts to

present to the reader the knowledge base upon which the present study is built. The purpose is to examine how vocabulary learning strategies are classified by different researchers. In reviewing the research work on vocabulary learning strategies, the researcher will start with a brief discussion of vocabulary learning strategies by different researchers. This is followed by a brief discussion of classification systems put forward by Cohen (1987); Weaver and Cohen (1997); Cook (n.d); Schmitt (1997); and Lawson and Hogben (1996). Finally, some research work on vocabulary learning strategies which contributes to the present investigation is presented.

2.2. Definition and Classification of Vocabulary Learning Strategy

For the present investigation, “vocabulary learning strategies” have been defined as “any set of techniques or learning behaviours, which EST students reported using in order to discover the meaning of a new word, to retain the knowledge of newly-learned words, or to expand their knowledge of English vocabulary”.

In classifying learning strategies by different researchers, various strategy names are used, rather than a standard and consistent set of terminology. Oxford and Crookall (1989) comment that it is impossible to provide a complete glossary of technical terms used in all studies. This makes it difficult in many cases to compare strategies reported in one study with those reported in another (Chamot, 1987; Ellis and Sinclair, 1989). This can also be applied to the classification of vocabulary learning strategies. Hence, the researcher for the present investigation will not attempt to make comparisons of any of the strategy classifications proposed by different researchers in terms of comprehensiveness or coverage.

Ellis (1994) notes that language learning strategies differ in a number of ways, reflecting the particular subjects that the researchers worked with, the setting, and the particular interests of the researchers. As can be seen below, different researchers have different ways of classifying learning strategies. What follows is a consideration of the vocabulary learning strategy classification systems which have been identified as the result of research on vocabulary learning strategies in different contexts by different researchers. These have made an important contribution to the knowledge of vocabulary learning strategies. The following section summarises, as well as discusses briefly strategy classification systems proposed by five researchers. These include the works of Cohen (1987); Weaver and Cohen (1997); Cook (n.d); Lawson and Hogben (1996); Stoffer (1995); and Schmitt (1997).

2.2.1. Vocabulary Learning Strategy Classification by Cohen (1987)

Cohen (1987, p. 43) suggests that there are various ways of attempting to commit new vocabulary items to memory. He classifies the strategies into 4 main groups which are:

- **Rote-repetition:** repeating the word and its meaning until it seems to have stuck;
- **Structure:** analyzing the word according to its root, affixes, and inflections as a way to understand its meaning;
- **Semantic strategies:** thinking of synonyms so as to build a network of inter-linking concepts, clustering words by topic group or type of word, or linking the word to the sentence in which it was found or to another sentence;
- **The use of mnemonic device** in order to create a cognitive link between an unfamiliar foreign language word or its translation by means of a cognitive mediator.

2.2.2. Vocabulary Learning Strategy Classification by Weaver and Cohen (1997)

Weaver and Cohen (1997) classify strategies for acquiring new vocabulary items as follows:

- **Categorisation :** e.g., according to meaning, part of speech, formal vs informal language forms, alphabetical order, or types of clothing or food;

- **Keyword mnemonics:** i.e., finding a native language word or phrase with similar sounds, and creating a visual image that ties the word or phrase to the target language word;
- **Visualisation:** e.g., through mental images, photographs, charts, graphs, or the drawing of pictures;
- **Rhyme/rhythm :** e.g., making up songs or short ditties;
- **Language transfer :** e.g., using prior knowledge of native, target, or other language structures;
- **Repetition :** e.g., repeating words over and over to improve pronunciation or spelling, trying to practice the words using all four skills: *writing* new sentences, making up stories using as many new words as possible, *reading* texts that contain those new words, purposely using words in *conversation* and *listening* for them as they are used by native speakers.

2.2.3. Vocabulary Learning Strategy Classification by Cook (n.d.)

Cook (n.d.) has classified vocabulary learning strategies as follows:

1. Linking L2 sounds to sounds of the L1 word
2. Looking at the meaning of part of the word
3. Noting the structure of part
4. Putting the word in a topic group
5. Visualising the word in isolation
6. Linking the word to a situation
7. Creating a mental image of the word
8. Associating a physical sensation with the word
9. Associating the word with a keyword

2.2.4. Vocabulary Learning Strategy Classification by Lawson and Hogben (1996)

Lawson and Hogben (1996, pp. 118-119) have classified vocabulary learning strategies based on the information obtained through the think-aloud procedure provided by 15 university students learning Italian in Australia. The individual vocabulary learning strategies have been classified under 4 different categories which include:

Repetition

- Reading of related words
- Simple rehearsal
- Writing of word and meaning
- Cumulative rehearsal
- Testing

Word Feature Analysis

- Spelling
- Word classification
- Suffix

Simple Elaboration

- Sentence translation
- Simple use of context
- Appearance similarity
- Sound link

Complex Elaboration

- Complex use of context
- Paraphrase
- Mnemonic

2.2.5. Vocabulary Learning Strategy Classification by Stoffer (1995)

Stoffer (1995) has proposed the vocabulary learning strategy classification as the result of her study reported in 'University foreign language students' choice of vocabulary learning strategies as related to individual difference variables'. The 53 individual strategies have been grouped under 9 different factors. These include:

1. Strategies involving authentic language use
2. Strategies involving creative activities
3. Strategies for self-motivation
4. Strategies used to create mental linkages
5. Memory strategies
6. Visual/auditory strategies
7. Strategies involving physical action
8. Strategies used to overcome anxiety and
9. Strategies used to organise words

2.2.6. Vocabulary Learning Strategy Classification by Schmitt (1997)

Schmitt (1997, pp. 199-227) has proposed a vocabulary learning strategy inventory as a result of the survey study with of 600 Japanese students learning English as a foreign language in Japan. The subjects include junior high, senior high, college, and adult students. The strategies have been classified under two main categories, i.e. Strategies for the discovery of a new word's meaning, and Strategies for consolidating a word once It has been encountered. These strategies again come under one of the following sub-categories: Social, Cognitive, Memory, determination,

and Metacognitive Strategy. What follow are the strategies inventory proposed by Schmitt.

Category I: Strategies for the discovery of a new word's meaning

- *Determination Strategies (DET)*
 - Analyse part of speech
 - Analyse affixes and roots
 - Check for L1 cognate
 - Analyse any available pictures or gestures
 - Guess from textual context
 - Bilingual dictionary
 - Monolingual dictionary
 - Word lists
 - Flash cards
- *Social Strategies (SOC)*
 - Ask teacher for an L1 translation
 - Ask teacher for paraphrase or synonym of new word
 - Ask teacher for a sentence including the new word
 - Ask classmates for meaning
 - Discover meaning through group work activity

Category II: Strategies for consolidating a word once it has been encountered

- *Social Strategies*
 - Study and practice meaning in a group
 - Teach check student's flash cards or word lists for accuracy
 - Interact with native speakers
- *Memory Strategies*
 - Study a word with a pictorial representation of its meaning
 - Image word's meaning
 - Connect word to a personal experience
 - Associate the word with its coordinates
 - Connect the word to its synonyms or antonyms
 - Use semantic maps
 - Use 'scales' for gradable adjectives
 - Peg Method
 - Loci Method
 - Group words together to study them
 - Group words together spatially on a page
 - Use new word in sentences
 - Group words together within a storyline
 - Study the spelling of a word
 - Study the sound of a word
 - Say a new word aloud when studying
 - Image word form
 - Underline initial letter of the word
 - Configuration

- Use Keyword Method
- Affixes and roots (remembering)
- Part of speech (remembering)
- Paraphrase the word's meaning
- Use cognates in study
- Learn the word of an idiom together
- Use physical action when learning a word
- Use semantic feature grids
- *Cognitive Strategies*
 - Verbal repetition
 - Written repetition
 - Word lists
 - Flash cards
 - Take notes in class
 - Use vocabulary section in your textbook
 - Listen to tape of word lists
 - Put English labels in physical objects
 - Keep a vocabulary notebook
- *Metacognitive Strategies*
 - Use English-language media (songs, movies, newscasts, etc)
 - Testing oneself with word tests
 - Use spaced word practice
 - Skip or pass new word
 - Continue to study word over time

In conclusion, as shown above, different researchers have different ways of classifying vocabulary learning strategies. A few researchers have made distinctive categories while others only made lists of vocabulary learning strategies. However, their distinction seems to share some common strategies or overlap, but is not identical. The most common or outstanding individual strategies tend to largely fall in the Memory category and others which are in small numbers fall in cognitive, metacognitive, social and determination categories.

2.3. Research on Vocabulary Learning Strategies

As mentioned earlier, many of the initial studies of vocabulary learning strategies were directed at experimenting ways or approaches which language learners employed to deal with new vocabulary items. There are very few empirical

research works which were directed at defining vocabulary learning strategies and developing taxonomies that could be used to classify them. The primary purpose of this section is to describe a survey of research on vocabulary learning strategies carried out by different researchers in different contexts during the past two decades.

The research findings presented show that although many variables have been investigated, e.g. level of proficiency, and the gender of students, there are other aspects which should be taken into consideration. However, the purpose of this preliminary investigation is to explore vocabulary learning strategies by foreign language learners regardless of their language proficiency level, gender, past language learning experience, etc. As a result, factors or variables which have been reported having some kind of relationship to strategy use of language learners will not be taken into account. With this in mind, the researcher attempts to present some analysis of past research including the purpose of study, the status of the target language in the context where the research has been conducted or the native language of the learners, the educational level of the participants, and the main method(s) of data collection used in the study. Table 2.1. below shows the structure of the analysis.

Table 2.1 : Research on Vocabulary Learning Strategies

1. Researcher	Kojic-Sabo, I., and Lightbown, P.M. (1999)
Title	Students' Approaches to Vocabulary Learning and Their Relationship to Success
Purpose of Study	1) To document what two groups of students learning English did to facilitate their lexical learning; 2) to examine how the approach students had adopted related to their vocabulary knowledge as well as their overall English proficiency
Subject of Study	1) Forty-seven ESL students at a university in Montreal, Canada; 2) forty-three EFL students at a pre-university schooling in Northern Yugoslavia
Method of Data Collection	1) A questionnaire for surveying students' approaches to vocabulary learning; 2) a set of test assessing vocabulary knowledge; 3) a measure of general language proficiency in the form of a cloze test.

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

2. Researcher	van Hell, J.G., and Candia Manh, A. (1997)
Title	Keyword Mnemonics Versus Rote Rehearsal: Learning Concrete and Abstract Foreign Words by Experienced and Inexperienced Learners
Purpose of Study	To examine the efficacy of the keyword method versus rote rehearsal in learning foreign language vocabulary
Subject of Study	1) Thirty-six undergraduate students from the University of Amsterdam (experienced language learners learning English, French, and German); 2) forty undergraduate students from Pennsylvania State University (inexperienced language learners learning Dutch)
Method of Data Collection	Experiment Treatments: keyword learning and rote learning

3. Researcher	Avila, E., and Sadoski, M. (1996)
Title	Exploring New Applications of the Keyword Method to Acquire English Vocabulary
Purpose of Study	To investigate comprehension and usage as well as recall of definitions
Subject of Study	Ninety-three low-achieving, disadvantaged fifth-grade LEP Hispanic students from an urban school district in Texas
Method of Data Collection	Experiment Treatment: 13 English words as the to-be-learned vocabulary (one practice booklet and one study booklet); Informal interviews

4. Researcher	Lawson, M.J., and Hogben, D. (1996)
Title	The Vocabulary-Learning Strategies of Foreign-Language Students
Purpose of Study	To explore the vocabulary-learning strategies used by advanced foreign language students
Subject of Study	Fifteen university students learning Italian in Australia
Method of Data Collection	Think-aloud procedure and interviews

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

5. Researcher	Ooi, D., and Kim-Seok, J.L. (1996)
Title	Vocabulary Teaching: Looking Behind the Word
Purpose of Study	To examine the difference in vocabulary learning strategy use among the subjects of different language proficiency levels
Subject of Study	One hundred and ten subjects comprising twenty native speakers of English (faculty members) and ninety nonnative first year students from Nanyang Technological University, Singapore
Method of Data Collection	Test of vocabulary: Fixed-ratio Method of deletion

6. Researcher	Chin, C. (1999)
Title	The Effects of Three Learning Strategies on EFL Vocabulary Acquisition
Purpose of Study	To examine the effects of three learning strategies (i.e. context, word form analysis, and combined context-word analysis) on low level EFL readers' vocabulary acquisition
Subject of Study	Eighty-five college freshmen in Korea learning English as a foreign language
Method of Data Collection	Experiment Treatment: three experimental groups learning vocabulary through context, word form analysis and combined context-word form analysis

7. Researcher	Kudo, Y. (1999)
Title	L2 Vocabulary Learning Strategies
Purpose of Study	To investigate vocabulary learning strategies which Japanese high school students use
Subject of Study	Five hundred and four Japanese senior high school students
Method of Data Collection	Survey: Vocabulary learning strategy questionnaire

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

8. Researcher	Schmitt, N. (1997)
Title	Vocabulary Learning Strategies
Purpose of Study	To examine vocabulary learning strategies reported by Japanese students learning English as a foreign language in Japan
Subject of Study	Six hundred Japanese students learning EFL in Japan comprising junior high school/senior high school/university students and adult learners
Method of Data Collection	Survey: Vocabulary learning strategy questionnaire

9. Researcher	Al-Qarni, I.R. (2003)
Title	Rote Repetition in Saudi Arabian Foreign Language Vocabulary Acquisition
Purpose of Study	To examine the impact of rote repetition strategies on the retention of newly learned items on both immediate recall test and delayed recall test
Subject of Study	One hundred and thirty-three freshmen Saudi students majoring in English language and translation
Method of Data Collection	Experiment Treatment: 1) Silent repetition (repeating the foreign word with its first language translation silently); 2) Verbal repetition (repeating the foreign word with its first language translation out loud); 3) Silent-written repetition (repeating the foreign word with its first language translation silently while writing it down); 4) Verbal-written repetition (repeating the foreign word with its first language translation out loud while writing it down)

10. Researcher	Al-Kaloby, S.A.A. (2001)
Title	Teaching and Learning Vocabulary in Saudi Arabian Public Schools: An Exploratory study of Some Possible Reasons Behind Students' Failure to Learn English Vocabulary
Purpose of Study	To explore the vocabulary situation at the secondary school level in Saudi Arabian public schools
Subject of Study	Fifty-two students and five EFL teachers in three secondary schools in Bishah, Saudi Arabia
Method of Data Collection	Survey: Questionnaire, classroom observations, and document analysis

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

11. Researcher	Nakamura, T. (2000)
Title	The Use of Vocabulary Learning Strategies: The Case of Japanese EFL Learners in Two Different Learning Environments
Purpose of Study	To investigate how Japanese learners of English use strategies when learning second language vocabulary in two different learning contexts (EFL vs ESL)
Subject of Study	Japanese high school students learning English in Japan (EFL) and those learning English in England (ESL)
Method of Data Collection	Survey: questionnaire, observations, and oral interviews

12. Researcher	Gu, Y. (2003)
Title	Fine Brush and Freehand: The Vocabulary-Learning Art of Two Successful Chinese EFL Learners
Purpose of Study	To examine how two successful EFL learners handled vocabulary learning during and after reading
Subject of Study	Two successful non-English major EFL learners at Beijing Normal University
Method of Data Collection	Interviews and think-aloud procedure

13. Researcher	Ricci, D.A. (1995)
Title	Effect of Vocabulary Journal Writing on Foreign Language Comprehension and Vocabulary Acquisition
Purpose of Study	To investigate and measure the effects of writing vocabulary journals on reading and listening comprehension and on vocabulary recall
Subject of Study	One hundred and eight graders studying Spanish in the United States
Method of Data Collection	Experiment Treatment: Control group (memorizing word lists); Treatment group (writing vocabulary journals)

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

14. Researcher	Houston, G.M. (1989)
Title	Comparing Three Strategies of Vocabulary Learning
Purpose of Study	To investigate the effects of three learning strategies on vocabulary acquisition
Subject of Study	Six ninth grade average classes in three low SES schools
Method of Data Collection	Experiment Treatment : Group I: Captured Mental Imagery – CMI (students drew a cartoon and wrote a sentence; Group II: Mental Imagery – MI (students created a mental image and wrote a sentence; Group III: Sentence Writing Only (SWO)

15. Researcher	Winke, P. (2001)
Title	Strategies for Vocabulary Acquisition in a Chinese as a Foreign Language Classroom
Purpose of Study	1) To investigate Chinese vocabulary learning strategies employed by students; 2) to investigate teacher beliefs about Chinese vocabulary learning strategies
Subject of Study	Nine learners of Chinese as a foreign language in the United States
Method of Data Collection	Exploratory: classroom observations; interviews; and vocabulary learning strategy questionnaire

16. Researcher	Gu, Y., and Johnson, R.K. (1996)
Title	Vocabulary Learning Strategies and Language Learning Outcomes
Purpose of Study	To establish the vocabulary learning strategies used by Chinese university learners of English and the relationship between their strategy use and their learning outcomes in English
Subject of Study	Eight hundred and fifty second-year students non-English major at Beijing Normal University
Method of Data Collection	Survey : Vocabulary Learning Strategy Questionnaire

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

17. Researcher	Lupescu, S., and Day, R. R. (1993)
Title	Reading, Dictionaries, and Vocabulary Learning
Purpose of Study	To investigate the contribution to vocabulary learning of the use of bilingual dictionaries while reading
Subject of Study	Two hundred and ninety-three second-year students studying English as a foreign language at two universities in Japan
Method of Data Collection	Experiment Treatment: Control group (148 students reading a short story and not allowed to use a dictionary); Treatment group (145 students reading a short story and allowed to use a dictionary while reading)

18. Researcher	Stoffer, I. (1995)
Title	University Foreign Language Students' Choice of Vocabulary Learning Strategies as Related to Individual Difference Variables
Purpose of Study	1) To validate the use of the Vocabulary Learning Strategies Inventory; and 2) to assess foreign language learners' use of vocabulary learning strategies as related to individual difference variables
Subject of Study	Seven hundred and seven students enrolled in French, Russian, Spanish, Japanese, and German at the University of Alabama
Method of Data Collection	Survey: Vocabulary Learning Strategy Questionnaire

19. Researcher	Chen, Mei-Chen (1998)
Title	The Role of Individual Difference in Adults' Benefits from the Mnemonic Keyword Method for Foreign vocabulary Learning
Purpose of Study	To investigate potential aptitude by treatment interactions associated with the mnemonic keyword method on foreign vocabulary learning task for adult learners of differing verbal ability, learning style, and trait anxiety
Subject of Study	Eighty-four college students
Method of Data Collection	Experiment Treatment group: learning a list of 24 Malay-English word pairs through the keyword method; Control group : learning a list of 24 Malay-English word pairs through their own strategies

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

20. Researcher	Zhang, Z. (1998)
Title	Exploring Effects of the Keyword Strategy on Limited English Proficient Students' Vocabulary Recall and Comprehension
Purpose of Study	To examine effects of the keyword (English/Spanish) strategy in comparison with the rehearsal strategy on the vocabulary learning
Subject of Study	Sixty fifth graders with Limited English Proficiency (LEP)
Method of Data Collection	Experiment 3x2x2 design: (3: keyword English strategy, keyword Spanish strategy, rehearsal strategy; 2: vocabulary recall and sentence completion; 2: immediate and one-week intervals)

21. Researcher	Chun, D.M., and Plass, J.L. (1996)
Title	Effects of Multimedia Annotations on Vocabulary Acquisition
Purpose of Study	To investigate the effects of different types of annotations (text, pictures, and video) on vocabulary acquisition
Subject of Study	Study 1) thirty-six second-year students learning German at the University of California at Santa Barbara; Study 2) one hundred and three second-year students learning German at Stanford University and UCLA; Study 3) twenty-one second-year students learning German at the University of California at Santa Barbara
Method of Data Collection	Questionnaire; Preview of the short story; Text (short story) using the program CyberBuch on McIntosh computers

22. Researcher	Brown, T.S., and Perry, F.L. Jr. (1991)
Title	A Comparison of Three Learning Strategies for ESL Vocabulary Acquisition
Purpose of Study	To compare three learning strategies (keyword, semantic, and keyword-semantic) for ESL vocabulary
Subject of Study	Six intact classes from the English Language Institute at the American University in Cairo
Method of Data Collection	Experiment: subjects were assigned to learn new foreign words through keyword; semantic; or keyword-semantic

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

23. Researcher	Rodriquez, M.S. (1999)
Title	Efficacy of Rote, Context, Keyword, and Context/ Keyword Learning Strategies on Retention of Vocabulary in EFL Classrooms
Purpose of Study	To examine the efficacy of rote rehearsal, context, keyword, and context/keyword methods on immediate and long-term retention of EFL vocabulary in natural classroom settings
Subject of Study	Eight intact ninth-grade classes
Method of Data Collection	Experiment Four treatment groups learning new foreign words through: rote rehearsal, context, keyword, and context/keyword methods

24. Researcher	Gu, Y. (2002)
Title	Gender, Academic Major, and Vocabulary Learning Strategies of Chinese EFL Learners
Purpose of Study	To investigate the use of vocabulary learning strategies of adult learners in China in relation to their gender and academic field of study
Subject of Study	Six hundred and forty-five second-year non-English major students at Beijing Normal University
Method of Data Collection	Survey: Vocabulary Learning Strategy Questionnaire; 2 vocabulary size tests

25. Researcher	Sanaoui, R. (1995)
Title	Adult Learners' Approaches to Learning Vocabulary in Second Language
Purpose of Study	To investigate how adult learners learn second language vocabulary
Subject of Study	Fifty beginning and advanced ESL learners and those studying French as a second language
Method of Data Collection	Four case studies of ESL students and eight case studies of students learning French as a Second Language (FSL)

Table 2.1 (cont) : Research on Vocabulary Learning Strategies

26. Researcher	Porte, Graeme (1988)
Title	Poor language Learners and their Strategies for dealing with New Vocabulary
Purpose of Study	To investigate how under-achieving EL learners dealing with new vocabulary items
Subject of Study	Fifteen under-achieving EFL learners in private language school in London
Method of Data Collection	Structured interviews

27. Researcher	Palmberg, R. (1988)
Title	Computer Games and Foreign-Language Vocabulary Learning
Purpose of Study	To test effects of playing with computer games on the learning of English vocabulary by young, elementary-level, Swedish-speaking children
Subject of Study	Two Swedish-speaking boys in Finland, aged 9 and 11
Method of Data Collection	Experiment using computer games and learner interests as a starting point

Table 2.1. above summarises the research work on vocabulary learning strategies from the early 1980's towards the early 2000's. Through an extensive review of research on vocabulary learning strategies, the researcher for the present investigation attempts to show how past researchers in the field investigated vocabulary learning strategies employed by the participants involved as well as the purpose or purposes of their investigation. Since this preliminary exploratory investigation is not intended to make any comparison of the effectiveness of individual strategy use or frequency of strategy use by different variables such as language proficiency, gender, language learning experience or learners' language status. Hence, these topics will not be the focal points of discussion. Rather, the researcher for the present investigation has attempted to demonstrate what past

researchers have taken into consideration in terms of individual vocabulary learning strategies reported being employed by language learners, no matter what level they study. Last but not least, another focal point of discussion in this part deals with the methods of investigation, i.e. survey, or experiment. What follow are some detailed descriptions of the past research in the field with regard to a) subjects of study, and b) methods of data collection.

2.3.1. Subjects of Study

The initial review of past research in the field of vocabulary learning strategies has revealed that the subjects of the past research could be classified as 1) non-native speakers of English learning English as either a foreign language or a second language (e.g. Kojic-Sabo and Lightbown, 1999; Avila and Sadoski, 1996; Ooi and Kim-Seok, 1996) ; and 2) native speakers of English learning a foreign language such as French, German, Italian, or Spanish (e.g. van Hell and Candia Manh, 1997; Lawson and Hogben, 1996; Ricci, 1995). The subjects of the past research could further be classified in terms of level of education, i.e. primary, secondary, tertiary levels and adult learners. With this regard, it has been revealed that the majority of the past researchers in the field investigated how vocabulary learning strategies were employed by students learning at the tertiary level, i.e. university students who are either native speakers of English learning a foreign language, or non-native speakers of English learning English as a foreign or second language. Very few researchers looked into how young learners or adult learners employed vocabulary learning strategies when dealing with a foreign language.

2.3.2. Method of Data Collection

The research review has demonstrated that two main methods of data collection were found to be dominant among the past researchers. These methods are either survey through the use of strategy questionnaire, or an experiment through the use of different individual strategies. Examples for the former include the works of Kudo (1999), Schmitt (1997), Al-Kaloby (2001), Nakamura (2000), and Gu (2002), and those for the latter include the works of Houston (1989), Lupescu and Day (1993), and Brown and Perry (1993). Other methods of data collection found to be employ for the purpose are think-aloud procedure (e.g. Gu, 2003; Lawson and Hogben, 1996), classroom observations (e.g. Winke, 2001; Al-Kaloby, 2001; Nakamura, 2000) and interviews (Gu, 2003; Nakamura, 2000; Winke, 2001).

2.4. Summary

Through the extensive review of literature in the field of vocabulary learning strategies, it appears that researchers have used different classification systems. Researchers may have derived their classification from their personal experience as language learners or language teachers; on other researchers' work, or on their own research work. This may be concluded that classifying vocabulary learning strategies depends on an individual researcher regarding their research population, the context where a research work has been carried out, and personal interests. However, as shown earlier, there are a few fundamental categories which a few researchers have applied in their classification schemes, i.e. the most common or outstanding individual strategies tend to largely fall in the Memory category and others which are in small numbers fall in cognitive, metacognitive, social and determination categories. Tudor (1996) suggests that more detailed breakdown of learning strategies

is still required. There is no single perfect definition that can apply to every situation. As Oxford (1990) points out, it is important to remember that any current understanding of language learning strategies is necessarily in its infancy, and any existing system of strategies is only a proposal to be tested through practical classroom use and through research. This is also true regarding vocabulary learning strategies. It is still important to recognise the limits of the current understanding of this area of language learning. At this stage in the review of language learning strategy research, there is no complete agreement on exactly what language learning strategies are; how many language learning strategies exist; how they should be defined, demarcated, and classified; and whether it is - or ever will be - possible to create a real, scientifically validated hierarchy of strategies. Above all, it has enabled the researcher to locate the present investigation in the context of the reviewed research, as well as authors' opinions.

Past research has been carried out in a variety of settings, target populations, methods of data collection, focal points of the investigation, and other factors taken into consideration when looking into learners' choice of strategy use. Chapter 3 deals with how the present investigation has been carried out.

CHAPTER THREE

RESEARCH METHODOLOGY AND THEORETICAL FRAMEWORK IN VOCABULARY LEARNING STRATEGIES

3.1. Introduction and Purpose of the Chapter

The purpose of this chapter is to discuss the conceptual framework of the research, as well as some general principles of research design which apply to the present investigation. It discusses research methods which have been used in the field of vocabulary learning strategies, the research questions and the conceptual framework for the present investigation. This is followed by a discussion of the data collection procedures and how the data obtained are reported, analysed, and interpreted. The last part of this chapter deals with sampling and the rationales behind the choice of subjects for the investigation and the characteristics of the research population.

Robson (1993) suggests that any research work can be classified in terms of its purpose, and the research strategy used. The purpose of any research work can be explanatory, descriptive, or exploratory. It can possibly be a combination of two or all of these purposes, but often one will predominate. The purpose may also change as the investigation proceeds. The purpose of the research work can be classified by looking at what the researcher wants to find out. Robson explains his classification of the purposes of research work as follows:

1. **Explanatory** : a researcher seeks an explanation of a situation or problem, usually in the form of causal relationships. This type of research may be qualitative and/or quantitative.
2. **Descriptive** : a researcher tries to portray an accurate profile of persons, events or situations. It requires extensive knowledge of the situation to be

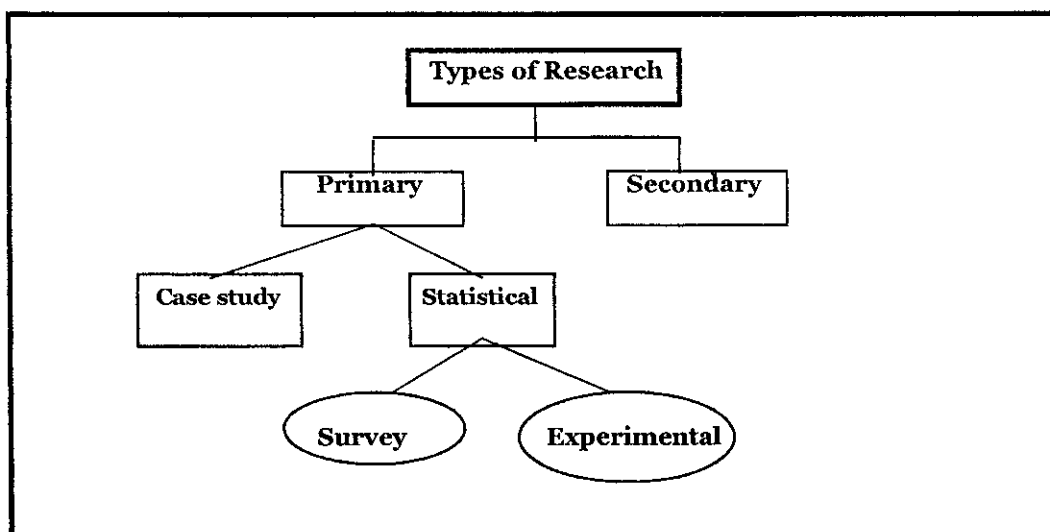
researched or described so that a researcher knows appropriate aspects on which to gather information. This type of research may be qualitative and/or quantitative.

3. Exploratory : a researcher tries to find out what is happening; to seek new insights; to ask questions; or to assess phenomena in a new light. This type of research is usually, but not necessarily, qualitative.

In addition to research purposes, it is also worth looking at a research design which is concerned with the planning of the study. Johnson (1977) proposes that the research design describes the purposes of the study, how subjects of the study are to be selected, methods or procedures to be followed, measurements to be collected and comparisons or other analyses to be made. Further, Robson (1993) suggests that whatever research strategy a researcher chooses or feels appropriate, the research questions must be the primary consideration as they have a strong influence on the strategy to be chosen.

In order to provide an overall picture of research design, Figure 3.1 below shows types of research as developed by Brown (1988 cf. Nunan 1992, p. 9).

Figure 3.1 : Types of Research



In Figure 3.1, Brown (1988) classifies types of research as primary and secondary. The distinction between primary and secondary research is based on how the information or data is obtained. In the primary research model, data is obtained from primary sources, e.g. a group of students who are learning a foreign language. In the secondary research model, data is obtained through reviewing literature in a given area and synthesising the work carried out by other researchers. Primary research is subdivided into two categories: case studies and statistical studies. The latter are further subdivided into survey studies and experimental studies.

When constructing an investigation, the researcher must consider which of the types of primary research is most appropriate given the purpose of the work, i.e. explanatory, descriptive, or exploratory. Robson (1993) has suggested the appropriate use of these three types of research as follows:

1. *Case studies* are appropriate with the 'how' and 'why' research type of questions. The focus of the research is on current events. The case studies are used for developing detailed, intensive knowledge about a single case or of a small number of related cases.
2. *Survey studies* are appropriate with the 'who, what, where, how many and how much' research type of question. They are used for collecting information in standardised form from groups of people, usually employing questionnaires or interviews.
3. *Experimental studies* are appropriate with the 'how and why' research type of question. Unlike case studies or survey studies, the control of variables and events is necessary. Hypothesis testing is always involved.

The purpose of the present investigation is to explore vocabulary learning strategies reported as being employed by students learning English for Science

and Technology (EST) at Suranaree University of Technology. Taking into account the purposes of research outlined above, the present investigation can be classified as exploratory and descriptive. The research is basically qualitative.

3.2. Methods in Vocabulary Learning Strategy Research

Johnson (1977, p. 9) states that “research methods are procedures a researcher follows in attempting to achieve the goals of a study”. Hence, the research methods used to investigate language learning strategies are procedures a researcher follows in attempting to achieve the goals of a study of language learning strategies, i.e. to elicit information about language learning strategies employed by students or language learners when they learn a language, especially the target language.

Oxford and Crookall (1989) suggest that language learning strategy research involves a range of procedures from simple lists of strategies to much more sophisticated investigations. However, Cohen and Scott (1996) have argued that at the present time, no single research method prevails in the field; certain research methods are well established but imperfect. Since there are many methods which a researcher can use to investigate how learning strategies are employed by students or language learners in order to cope with language problems, or to enhance their language learning, each method has both weak and strong points, but whatever method a researcher employs, he or she must take the main purpose of the study into consideration (Robson, 1993).

In this section, the main research methods or procedures used to gather data on vocabulary learning strategies will be discussed. This is followed by the framework of methods for data collection for the present investigation. The main research methods for vocabulary learning strategies include: 1) Classroom

Observations; 2) Oral Interviews; 3) Written Questionnaires; 4) Think-Aloud; and 5) Diary studies.

3.2.1. Classroom Observations

Attempts have been made to identify different language learning strategies by observing language learners performing a variety of tasks, usually in classroom settings (Ellis, 1994). There are no straightforward rules for observation, but a researcher can learn a lot from practice and reflection on that practice (Richards, 2003). Observations are easy to use in the classroom and they can be conducted either formally or informally (Oxford and Burry-Stock, 1995). Meaningful classroom observations of language learning strategy use are possible for certain kinds of observable strategies, e.g. co-operating with peers, asking questions for clarification or verification, and gesturing to convey meaning, but they are not possible for other unobservable or invisible language learning strategies such as associating/elaborating, or using imagery (Oxford and Crookall, 1989). Consequently, some researchers (Rubin, 1981 for example) found that this method was not very productive, as it reveals nothing about the mental strategies that learners are likely to use and because frequently classroom teachers afford little opportunity for learners to exercise behavioural language learning strategies including those for vocabulary learning. Naiman et al. (1978), Cohen and Apeh (1981), and Graham (1997) also found that this method singly is inadequate to provide much information about language learning strategies that learners employ. However, this method is still fruitful and workable as Chesterfield and Chesterfield (1985) reported in a study that revealed a number of language learning strategies used in a bilingual classroom by young learners. As evidenced in the Chesterfields' study, we may be able to take it that classroom observation

works better with young children whose behaviour may serve as a good indicator of their mental activity (Ellis, 1994).

3.2.2. Oral Interviews

Apart from classroom observations, in investigating a student's vocabulary learning strategies, a researcher can ask the student to describe what language learning strategies he or she uses and how they are used to deal with aspects of language learning. One way to do this is to interview students. A student interview calls for retrospective accounts of learning strategies he or she has employed (Ellis, 1994) which is also applicable for an elicitation of students' vocabulary learning strategies.

Interviews can be characterised in terms of their degree of formality and can be placed on a continuum ranging from unstructured through semi-structured to structured (Nunan, 1992). Whether they are structured or unstructured, student interviews provide personalised information on many types of language learning strategies which would not be available through classroom observations (Oxford and Burry-Stock, 1995). An unstructured interview is guided by the responses of the interviewee and the interviewer exercises little or no control over the interview. This makes the direction of the interview relatively unpredictable. In a semi-structured interview, the interviewer has a general idea of where he or she wants the interview to go, and what should come out of it. However, the interviewer does not enter the interview with a list of predetermined questions. On the other hand, in a structured interview, the agenda is totally predetermined by the interviewer. Whatever type of interview a researcher wants to use as a method for data collection, he or she should consider the nature of the research and the degree of control he or she wishes to exert. Of the three types of interview mentioned above, the semi-structured interview seems to be popular among

researchers. The reason for its popularity is its flexibility as supported by Nunan (1992, p. 149) "...because of its flexibility, the semi-structured interview has found favour with many researchers, particularly those working within an interpretative research tradition". Besides the flexibility it gives to the interviewer, the semi-structured interview also gives the interviewee a degree of power and control over the course of the interview. However, Robson (1993) has made a comment in this regard that to make profitable use of its flexibility calls for skill and experience in the interviewer. The lack of standardisation raises concerns about reliability. Biases are difficult to rule out, and the interview may be time-consuming.

3.2.3. Written Questionnaires

Like oral interviews, written questionnaires are used to elicit learner responses to a set of questions, and they require the researcher to make choices regarding question format and research procedures (Cohen and Scott, 1996). In addition, Oxford and Crookall, (1989) suggest that written questionnaires typically cover a range of language learning strategies and are usually structured and objective (closed) in nature. In other words, informants have little or no freedom in providing their own responses to the questions as choices for responses are normally provided. Question items in written questionnaires can range from those asking for 'yes' or 'no' responses or indications of frequency (e.g. Likert Scales) to less structured items asking respondents to describe or discuss language learning strategies they employ in detail. In this scenario, the respondents have more control over the information included in their responses. The responses to structured questionnaires may be simplistic or contain only brief information about any one language learning strategy. The questionnaires that require the respondents to indicate frequency of use of language learning strategies, like Likert Scales, are easy and quick to give, provide a general assessment of each

respondent's typical strategies, and may be the most cost-effective mode of strategy assessment. They are also almost non-threatening when administered using paper and pencil under conditions of confidentiality (Oxford and Burry-Stock, 1995). Further, written questionnaires enable the researcher to collect data in field settings and the data obtained are more amenable to quantification than those collected through free-form field notes, participant observing journals or the transcripts of oral language (Nunan, 1992). However, there are a few weak points with this kind of questionnaire. The data may be superficial. There is little or no check on honesty or seriousness of responses. This may be seen as a challenge for a novice researcher with regard to his or her own ability to deal with such limitations. More importantly, while analysis may be easy, but time-consuming, interpretation can be problematic (Robson, 1993; and Walker, 1985).

3.2.4. Think Aloud

Gerloff (1987, p. 137) defines a think-aloud protocol as “a moment-by-moment description which an individual gives of his or her own thoughts and behaviours during the performance of a particular task”. Methods of thinking aloud have been used mainly to investigate the processes of translation and communication in a foreign language (Feldmann and Stemmer, 1987). In the literature regarding vocabulary learning strategies, the use of verbal protocols which require the subjects to think aloud while tackling a task was unusual (Cavalcanti, 1987). However, a few researchers have used this method to investigate vocabulary learning strategies of students (e.g. Gu, 2002). That is to say, the researcher listens to learners as they think aloud. In doing this, Oxford and Burry-Stock (1989) note that ‘think aloud’ protocols offer the most detailed information of all because the student describes strategies while doing a language task, but these protocols are usually used only on a one-to-one basis. They also

take a great deal of time, reflect strategies related only to the task at hand and are not summative across students for group information. To put it simply, this method provides a researcher with individual information rather than as a group. The procedure may also interfere with the task which the learner is carrying out.

3.2.5. Diary Studies

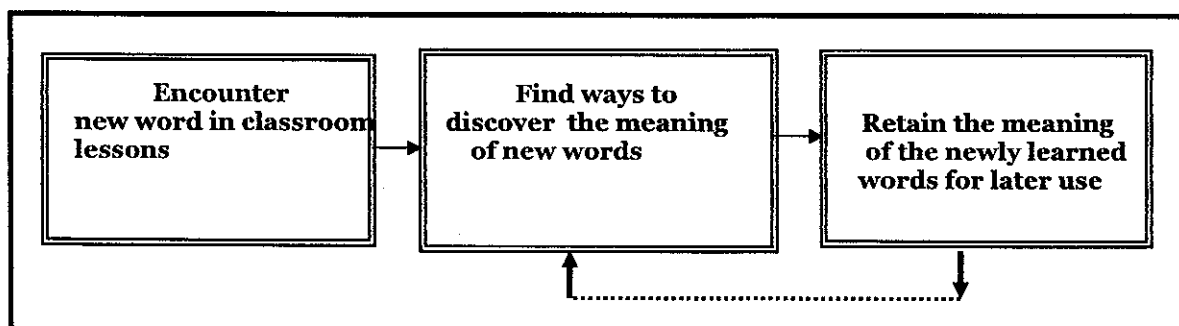
In an effort to collect data on language learning strategies employed by students over a period of time, some researchers have turned to diaries as a research tool (Cohen and Scott, 1996). Bailey (1990, p. 215) defines the diary study as “a first-person account of a language learning or teaching experience, documented through regular, candid entries in a personal journal”. Since diaries are learner-generated and usually unstructured, the entries may cover a wide range of themes and issues. They may include learners’ written reports of the cognitive, metacognitive, and social strategies they use daily in language learning (Cohen and Scott, 1996). Further, diaries are usually subjective or open-ended, requiring a student’s constructed responses, and free-form although they can be guided by teacher suggestions (Oxford and Crookall, 1989). Bailey and Ochsner (1983 cf. Nunan 1992, p. 120) suggest ways to shape diary studies in order to make them suitable as research documents. For example, the data collection should be as candid as possible despite the potential embarrassment of some of the entries. The initial database can be revised for public consumption. Patterns and significant events are identified and the factors which appeared to be important in language learning are discussed and interpreted. Nunan (1992) suggests that it is probably a good idea to avoid analysing and interpreting the data until a substantial amount of material has been collected. This can help the researcher avoid coming to premature conclusions which may be inaccurate or incorrect. Diary studies may be highly problematic for a researcher because:1) learners may

be unfamiliar with diaries; 2) researcher and learners may not share the same language, so there is a problem which language should be used; and 3) learners may want a 'reward' for the effort, e.g. feedback from the researcher.

3.3. Theoretical Framework for the Present Investigation

The main purpose of carrying out an extensive review of available related literature and other materials on vocabulary learning strategies in Chapter 2 was to find evidence which would aid the researcher in developing a theoretical framework, locating the present investigation in the context of past research and other authors' opinions, and creating the rationale for the present study. Figure 3.2 below demonstrates the theoretical framework for examining vocabulary learning strategies reported being employed by students learning English for Science and Technology at Suranaree University of Technology.

Figure 3.2. : Theoretical Framework for the Present Investigation



The proposed theoretical framework, which essentially is based on the related literature on vocabulary learning strategy research, demonstrates that when learners encounter any new vocabulary items in their classroom lessons, hypothetically they will try to find ways to discover the meaning of a new word. Once the word is learned, they again will have to look for a suitable way to retain the meaning of the newly-learned word for later use purpose. This will occur again as a new cycle. In other words, whenever learners encounter new words which

they do not know, they will look for any possible way to discover the meaning. If they do not remember the meaning of the new word, they will return to the 'meaning discovery' again. As shown in Chapter 2, using a dictionary or asking teacher or classmate, for example, may be used by learners for such a purpose.

Through an extensive review of research on vocabulary learning strategies in Chapter 2, we can see that some strategies, which are believed to be employed by foreign language students, have been taken into account for investigation by researchers in the field through experiments. Some strategies have been reported to have a strong relationship with word learning, while others have little or no relationship with lexical learning. As the present investigation has been designed to preliminarily explore vocabulary learning strategy use of students learning English for Science and Technology at Suranaree University of Technology, the researcher has to look at the university context in order to determine the variables to be involved in the investigation to provide adequate and useful information about vocabulary learning strategies. One of the major motivations for carrying out this study has been the hope that it will be possible to make use of the research findings to help improve language learning and teaching to students at this university especially vocabulary learning which has been ignored by many teachers and has been acknowledged that vocabulary is the 'greatest single source of problems' for L2 learners (Meara, 1980, p. 221). Initially, the philosophy of foreign language instruction suggested by Cohen (1998) was reviewed. Cohen suggests that at present foreign language instruction has changed to be more interactive and less teacher-centred, and this particular investigation has been intended to find an appropriate way to encourage students learning English for Science and Technology at Suranaree University of Technology to take responsibility for their own learning and to become more self-reliant. As suggested

by Rivers (1983), efforts should be directed towards helping students become autonomous learners who are able to build, expand and refine their vocabularies on their own, both in and outside classroom. Furthermore, Graves (1987 cited in Lawson and Hogben, 1996) suggested that 'because students actually do most of their learning of new words independently, it makes sense to encourage them to adopt personal plan to expand their vocabularies over time' (p. 177).

3.4. Research Questions

Based on the proposed theoretical framework for the present investigation, and the extensive review of literature, the research question can be formed. The present investigation attempts to explore the vocabulary learning strategies employed by students learning English for Science and Technology at Suranaree University of Technology. In order to establish some empirical data on the context of language learning of students at this university, the present investigation is designed to answer the following specific questions:

1. What types of strategies do SUT students learning EST employ in order to deal with new vocabulary items?
2. What are the implications of these research findings for the teaching and learning of English for students at Suranaree University of Technology?

3.5. Sampling and Rationales for Choice of Subjects

Kane (1983) defines a sample as:

'a portion of the universe and, ideally, it reflects with reasonable accuracy the opinions, attitudes or behaviour of the entire group. Further, the result from a sample cannot be expected to be precisely the same as the result obtained from studying the universe. The sample has to be similar to the universe or the population. If not, the results of the study are useless'. (p 90)

In addition to this respect, Cohen and Manion (1994, p. 89) note that 'the correct sample size depends on the purpose of the study and the nature of the population under scrutiny'.

Since it is doubtful that the entire population can be tested, a sample will have to be used. The sample should provide results similar to those that would have been obtained had the entire population been studied. In selecting the subjects for an investigation, several questions arise (Drew, 1980), for example, whether or not the subjects are appropriate for the research question, whether or not the subjects are representative, and how many subjects should be used. The first two questions pose no problems, but the third one is more difficult to answer. According to Drew, a sample size presents a problematic question because no set answer or rule may be given. If the sample does not accurately represent the population, interpretations of the results may not be accurate for individuals other than those actually used as subjects. If the researcher is unaware that the sample is unrepresentative, incorrect inferences may be drawn concerning the population in general.

This investigation is broadly exploratory and it is the intention of the researcher to go for a sample size sufficient to serve the purpose of the investigation. The researcher has to keep in mind that the sample size should not be too big to be manageable. In this regard, Locke et al (1998) suggest that the adequacy of the sample is important because it determines whether or not it is reasonable to believe that the results of the research would hold for any other situation or group of people. That is, the subjects should represent students learning English for Science and Technology at Suranaree University of Technology. In any event, the researcher must attempt to address some issues

when selecting the sample by taking some crucial factors dealing with the variables for the present investigations into consideration.

Altogether 133 students studying at four different institutes, i.e. Engineering, Agricultural Technology, Public Health, and Social Technology, participated in this investigation. Principally, the students were selected on the basis of convenience and availability. Having taken the crucial factors in sampling, the researcher was confident that these 133 students would provide the researcher with enough information to serve the purpose of the present investigation.

3.6. Characteristics of the Research Population

Tables 3.1 presents the breakdown of the number of participating students in the data collection in order to give a context for the results obtained through the data analysis for the present investigation. This breakdown has been described in terms of number and percentage for each of the three variables.

Table 3.1 : Number of Students by ‘Perceived’ English Language Ability; Gender; and Field of Study

‘Perceived’ Language Ability	Poor	Fair	Good/very Good	Total	
	69	64	--	133	
Gender	Female	Male	Total		
	74	59	133		
Field of Study	Engineering	Agricultural Technology	Public Health	Information Technology	Total
	77	18	24	14	133

The characteristics of the research population can be summarised as follows:

- The number of students perceiving or rating their English language ability as ‘fair’ is slightly smaller than those perceiving their language ability as ‘poor’. No students perceived their language ability as ‘good/very good’.

- The number of female students is slightly larger than the number of their male counterparts
- The number of engineering students is larger than those studying in the other major fields of study while the number of Agricultural Technology students is the smallest. This is based on the fact that engineering is the largest Institute at Suranaree University of Technology.

The characteristics of the subject distribution are generally satisfactory, though the distribution itself is not perfectly well-balanced or proportioned as planned due to a few extraneous factors or obligations which were beyond the manageability of the researcher. These factors or obligations can be briefly summarised as follows:

1. The students selection (field of study proportion)

Since Suranaree University of Technology is a specialised university for science and technology and the majority of students are doing engineering, so it is impossible for the researcher to get an ideally well-balanced proportion of the four fields of study. As a result, the number of the participating Engineering students for the present investigation is relatively large when compared with the other three fields of study. However, the students studying the other three majors had provided the researcher with very useful information for the investigation.

2. The students' 'perceived' language ability levels

It is unforeseeable how many students studying at this university would rate their English language ability as 'good/very good'; 'fair'; or 'poor'. As a result of the test for the present investigation, the much larger percentages of students rated their language ability as 'fair' and 'poor' as shown in the Table 3.1 above.

3.7. Data Collection Method for the Present Investigation

In collecting data to answer the research questions for the present investigation, the researcher posed three open-ended questions to the participants as the guide for them to provide information about their vocabulary learning strategies. These questions are: 1) how would you rate your language ability, i.e. poor, moderate, or good/very good; 2) do you think vocabulary is important in language learning; and 3) when encountered with a new vocabulary in a lesson, how would you deal with it in order to learn such a new word? Apart from these three open-ended questions, the participants were requested to provide the researcher with their 'perceived' language ability, gender, and their field of study.

3.8. Methods for Data Generation

In collecting data to answer the research questions for the present investigation, an open-ended questionnaire was used as the main method. It was administered to SUT students who are the research population for this particular investigation at the end of term 3/2002 (February and March 2003). The researcher made every attempt to ensure the readiness of everything for when the data collection started. When meeting with students, the researcher started the classroom process by briefing them on the purpose of the data collection and the use of the outcome of this investigation. The students were asked to look through the questions and they were allowed to ask about any questions that they did not understand. The students were asked to think about the responses to the questions outside the class time and hand in the following day in the researcher's office. The written open-ended questions were then processed and analysed qualitatively and partly, the coding system suggested by Lawson and Hogben (1996) was used to help analyse the data and categorise the emergent strategies.

The full results of the analyses as well as a discussion of the findings are presented in Chapter 4 and Chapter 5.

3.9. Summary

In summary, the present investigation was conducted with 133 language learners learning English for Science and Technology at Suranaree University of Technology, trimester 3/2002 (February and March 2003). The instrument used to collect was the open-ended questions posed by the researcher. The results as well as the discussion of the data analyses for the student written responses to the questions are to be presented in the next chapters (Chapters 4 and 5).

CHAPTER FOUR

RESEARCH FINDING: PRELIMINARY VOCABULARY LEARNING STRATEGY INVENTORY

4.1. Introduction and Purpose of the Chapter

This chapter mainly deals with the vocabulary learning strategy inventory which emerged from the data obtained through student self-report data provided by 133 EST students in early 2003. Firstly, the procedures of eliciting information from the 133 students in the data collection are presented. This is followed by a description of how the preliminary vocabulary learning strategy inventory was generated based on self-report data. Then the generation of the definitive vocabulary learning strategy inventory had been carried out.

As seen in Chapter 2, different researchers have different ways of classifying vocabulary learning strategies based on their own or other researchers' research work, or on a review of related literature in the subject areas. It is also noted that no single classification system is perfect. What is suitable for a researcher to use to elicit the use of language learning strategies with one group of language learners may not be suitable for another. Against this background, the researcher carefully planned that the most suitable and effective method for the task in hand to elicit vocabulary learning strategies from EST students at Suranaree University of Technology was to make use of the information reported by EST students themselves.

4.2. The Data Collection

The data collection was the conducted with EST students in February and March 2003. An open-ended questionnaire was used. The purpose of the open-ended questionnaire was to elicit students' use of vocabulary learning strategies

when encountered unknown vocabulary items mainly from their classroom lessons. The questions posed for the students dealt with their perceptions about their language ability, and their opinion about vocabulary in language learning, and with the vocabulary learning strategies they employed. The content of the questions emerged partly from reading literature and available research related to the field of investigation, and partly through the researcher's personal experience about language learning strategies. The questions can be summarised as follows:

Q1 : an investigation of each student's perception of his or her language ability

Q2 : an investigation of each student's opinion about vocabulary and language learning

Q3 : an elicitation about strategies they employed in order to deal with vocabulary

The researcher started the process by asking altogether 113 students in his own classes who were studying English Two, English Five, and English Elective One. These students were representatives of the students who studied English for Science and Technology. Among these students, fifty-nine students were male and seventy-four were female students. Regarding the field of study, seventy-seven students were doing Engineering, eighteen Agricultural Technology, twenty-four Public Health, and fourteen were doing Information Technology. In terms of 'perceived' language ability, none of the students perceived their language ability as 'good/very good'. However, sixty-four of them perceived their language ability as 'fair' while sixty-nine students were considered as 'poor' language learners based on their own perception.

Before the data collection took place with each group of students, the researcher started off with talking with his students about language learning and asked them what they found important in learning English. A lot of students were of their opinion that 'vocabulary' seemed to play an important role in learning English and knowing a lot of vocabulary enables them to learn and understand

English better. This is consistent with the results of student interviews which the researcher conducted with 39 engineering students in 1998, which revealed that 'vocabulary' is the heart of language learning. The researcher then asked his students what they normally do when they encounter problems or difficulties with new vocabulary items. The reason why the researcher did this because he wanted to make sure that his students really understood what they were supposed to answer. In other words, the researcher wanted to give an example of a vocabulary learning strategy. Finally, every student was asked to spend some free time after class to think about what they actually do, not what they should do, to deal with learning new English vocabulary. A similar process was conducted at the other three groups of students. To gain better understanding about the strategies reported in the written questionnaires, the researcher managed to talk informally with 20 students who provided the information. From doing this, the researcher could get a clearer picture of the strategy use especially in terms of purpose of strategy use.

4.3. How the Preliminary Vocabulary Learning Strategy Inventory was Generated

Once the written open-ended questionnaires were collected as appointed, the researcher started generating the preliminary vocabulary learning strategy inventory through the following steps.

1. The researcher looked through the data provided by 113 respondents in order to get a whole picture of what the respondents reported doing.
2. The researcher started to look at each written questionnaire in detail and then noted what could be regarded as learning behaviours or learning strategies dealing with vocabulary items. At this stage, the researcher always kept in mind what vocabulary learning strategies are as particularly defined for the present

investigation. Each individual language learning behaviour or strategy dealing with vocabulary was singled out. Each language learning behaviour or strategy had to be consistent with the definition of the language learning strategy which was specified for this particular investigation. Special care was taken at this stage to ensure that every single reported learning behaviour or strategy was identified and none was left out.

3. The researcher started to look at differences and similarities of the reported statements as a whole. From the list, it was found that the respondents produced altogether 468 statements about vocabulary learning behaviours or strategies. At this stage, the researcher started to think of how these reported statements should be grouped.

4. The researcher started to group these 468 statements according to the similarities of the context or situation in which the learning behaviours were reported to be used. It was found that these statements reported behaviours which were used mostly to achieve some vocabulary learning purposes. However, at this stage, the researcher was left with the question of how to classify these reported statements. They could be classified roughly like that of Schmitt (1997) or others. After a clearer picture of the whole range of these vocabulary learning strategies emerged, the researcher recalled what was done to classify language learning strategies (2000) and these vocabulary learning strategies could also be classified in the same manner according to the purpose of strategy use. Consistent with the suggestions, Richterich (1996, p. 44) comments that 'strategies are formed by a series of co-ordinated actions for the purpose of achieving an objective reflected by the acquisition of knowledge, know-how, attitude, and learning skills'. However, as this investigation is exploratory in nature, the researcher also sought to find appropriate coding system in order to facilitate the classification for the present

investigation. Eventually, part of the coding system by Lawson and Hogben (1996) has been adopted (see the coding system below). The researcher finally decided to try the preliminary classification based on the reported purposes of strategy use. The next stage could then start.

Lawson and Hogben's Codes Used in the Analysis by Category (1996, pp. 118-119)

Repetition

- Reading of related words (Code: The student makes use of the information on words related to the new word by reading them out at least once as an aid to learning the target word.)
- Simple rehearsal (Code: The student repeats the word, with or without repeating its meaning, at least once.)
- Writing of word and meaning (Code: The student not only repeats but also returns to previous words and rehearses these in a sequence; this could be all words up to that point, or only some of them.)
- Cumulative rehearsal
- Testing (Code: The student self-tests by covering the English meaning or the native word, trying to generate the other part of the topic.)

Word Feature Analysis

- Spelling (Code: The student comments on the spelling of the word, perhaps actually spelling it out.)
- Word classification (Code: The student comments on some observed pattern in the word, or makes some observation related to its grammar, for example, 'So it can be a noun or an adjective...')
- Suffix (Code:)

Simple Elaboration

- Sentence translation (Code: The student translates or attempts to translate the sentence containing the target word.)
- Simple use of context (Code: The student suggests a possible meaning for the word prior to referring back to the card. No specific reference is made to any other word(s) in the sentence. This is interpreted as simple guessing from context.)
- Appearance similarity (Code: The student links the word to a word in their native language, or to another target word based on its physical appearance.)
- Sound link (Code: The student identifies a basis for linking the sound of the word to a word in their native language, or to another known target word.)

Complex Elaboration

- Complex use of context (Code: The student makes a serious attempt to derive word meaning from the sentence, as a first step toward acquisition by making reference to meaning or features of other words in the sentence, perhaps suggesting possible alternative meanings for the target word.)
- Paraphrase (Code: The student identifies synonyms for the new word, or comments on some related words.)
- Mnemonic (Code: The student employs a detailed mnemonic procedure, such as that involved in forming a picture or image of the word and/or meaning.)

5. At this stage, both actions and purposes were taken into consideration. For example, one student reported, "I memorise new vocabulary items to help me remember those words better" (translated-sample response). Another student

reported a similar statement, “I like memorising new vocabulary items with a list of those words. From doing this, I can remember the new words better” (translated-sample response). This means that ‘memorising new vocabulary items with or without a word list’ is an action for both students and they share the same purpose, i.e. to remember new words better. It is noted that students did not use the precise words for the purpose, so the researcher had to interpret and look for the most suitable words to describe the purpose they reported trying to achieve. Initially, three main groups emerged from the 468 reported statements. Because of the importance of this stage, which was iterative, it was extensively reviewed before moving on to the next one. This is because the researcher had to make sure that the reported statements in each group shared the similar characteristics in the context or situation in which they were reported to be used.

6. The next step was to identify each group of vocabulary learning behaviours. It was not easy to find the suitable name to cover most, if not all, of the reported statements which came under the same group. Once each individual group of learning behaviour or strategy was identified, the next step could then start.

7. At this stage, the individual thirty-two strategy items, which were already identified, were again considered and then grouped together according to the purpose of each strategy use. The researcher was again left with the question of how to classify these individual strategy items. The classification proposed by Schmitt (1997) mentioned in stage 4 above was again taken into consideration. However, the researcher had to keep in mind again that different researchers could differently classify vocabulary learning strategies based on the literature review in Chapter 2. Thus, it appeared that every strategy item shared one prominent characteristic, i.e. each strategy was reported being used in order to enable students to achieve a certain purpose. The researcher started to look at

purposes of strategy use which students reported and came up with three purposes. Appropriate names for purposes of strategy use were initially given. The next step was to match strategy items and each purpose.

8. Once the individual strategy items and the purposes were matched and more or less settled, the researcher started to reconsider if these three groups of vocabulary learning strategy use could be classified any further. The researcher tried very hard to see if there was a prominent characteristics these purposes might share. It was found that these purposes could not be further classified. Consequently, three appropriate purposes identified earlier were found to be suitable for the present inventory. Eventually, 'The Proposed Vocabulary Learning Strategy Inventory' came into being. In order to apply a structure and reference system to the data, main category 1 **To discover the meaning of new vocabulary items** has been abbreviated to **DMV**, main category 2 **To retain the knowledge of newly-learned vocabulary items** to **RKV**, and main category 3 **To expand one's knowledge of vocabulary** has been abbreviated to **EKV**. Each purpose which students reported employing individual strategies to try to achieve is allotted a number within each main category. The resulting references for the present strategy inventory run from **DMV 1 to DMV 10**, from **RKV 1 to RKV 11**, and **EKV 1 to 10**. So for example **DMV4** is the fourth individual vocabulary learning strategy which students reported employing to try to discover the meaning of new vocabulary items, i.e. Guess the meaning from the context.

In classifying vocabulary learning strategies for the present investigation, the researcher always recognises that the strategies in all three categories are always supportive with one another. That is, the strategies which students reported employing in order to discover the meaning of new vocabulary items may

help them retain the knowledge of the newly-learned vocabulary items or expand their knowledge of vocabulary. In the same effect, the strategies which students reported employing to expand their knowledge of English vocabulary may also help them in terms of retaining or discovering the meaning of new vocabulary items. In other words, strategies were reported to be to discover the meaning of new vocabulary items, to retain the meaning of newly-learned words, and expand their knowledge of vocabulary are not clear-cut. That is to say, the vocabulary learning strategies under the three categories are interactive and have a spiral relationship rather than linear.

To sum up, initially, the researcher looked carefully through the written questionnaires provided by 133 students, attempting to find the common characteristics of the reported statements such as learning behaviours and a purpose of using such learning behaviours. It emerged that most of the statements which could be regarded as 'vocabulary learning strategies' were reported by students in order to achieve a particular learning purpose, identified later as to discover the meaning of new vocabulary items, retain the meaning of newly-learned words, and expand knowledge of vocabulary. In other words, students reported using certain strategies because they had a purpose in mind to achieve. The process of classifying these reported learning behaviours or strategies together with purposes of using certain learning behaviours was iterative. Moreover, the researcher had to reconsider different aspects of the classification, for example, terms used to identify purposes of strategy use and labels to identify strategies as the whole system, several times in order to reach a satisfactory classification. Figure 4.1. below summarises the outline of the learning strategy inventory which emerged from the data analysis obtained through student written questionnaires for the present investigation.

Figure 4.1 : The Outline of the Vocabulary Learning Strategy Classification for the Present Investigation

Preliminary Vocabulary Learning Strategy Inventory		
Main Category	Purpose to be Achieved	Individual Strategy
Main Category 1	To discover the meaning of new vocabulary items	DMV 1-DMV 10
Main Category 2	To retain the knowledge of newly-learned vocabulary items	RKV 1- RKV 11
Main Category 3	To expand one's knowledge of vocabulary	EKV 1 – EKV 10

4.4. The Preliminary Vocabulary Learning Strategy Inventory

The vocabulary learning strategy inventory for the present investigation emerged from the data obtained through the written open-ended questionnaire. The researcher analysed the data qualitatively and classified the reported strategies according to *their being used in order to achieve particular vocabulary learning purposes, i.e. to discover the meaning of new vocabulary items; to retain the knowledge of newly-learned vocabulary items; and to expand one's knowledge of vocabulary.*

Following are the results of the student written open-ended questionnaires regarding the vocabulary learning strategies reported being employed by EST students.

4.4.1 Vocabulary Learning Strategies to discover the meaning of new vocabulary items (DMV)

The vocabulary learning strategies under this main category are the strategies which were reported to be employed by 133 EST students in order to discover the meaning of new vocabulary items they frequently encounter. The strategies reported being employed were mainly for the classroom learning purpose while some for vocabulary other than their classroom lessons.

DMV 1 : Use a Thai-English dictionary to discover the meaning of new vocabulary items

DMV 2 : Use an English-Thai dictionary to discover the meaning of new vocabulary items

DMV 3 : Use an English-English dictionary to discover the meaning of new vocabulary items

DMV 4 : Guess the meaning from the context to discover the meaning of new vocabulary items

DMV 5 : Ask one's classmate or friend to discover the meaning of new vocabulary items

DMV 6 : Ask one's teacher to discover the meaning of new vocabulary items

DMV 7 : Ask someone other than one's teacher, classmate or friend to discover the meaning of new vocabulary items

DMV 8 : Look at the word roots, prefixes or suffixes to discover the meaning of new vocabulary items

DMV 9 : Use an on-line dictionary to discover the meaning of new vocabulary items

DMV 10 : Use an electronic dictionary to discover the meaning of new vocabulary items

4.4.2 Vocabulary Learning Strategies to retain the knowledge of the newly-learned vocabulary items (RKV)

The vocabulary learning strategies under this main category are the strategies which were reported to be employed by 133 EST students in order to retain the knowledge of newly-learned vocabulary items they frequently encounter. The strategies reported being employed were mainly for the classroom learning purpose while some for vocabulary other than their classroom lessons.

RKV 1 : Memorise with or without a word list in order to retain the knowledge of newly-learned vocabulary items

RKV 2 : Keep a vocabulary notebook in order to retain the knowledge of newly-learned vocabulary items

RKV 3 : Group words based on the synonymity or antonymity in order to retain the knowledge of newly-learned vocabulary items

RKV 4 : Associate new words with the already-learned ones in order to retain the knowledge of newly-learned vocabulary items

RKV 5 : Use new words in writing in order to retain the knowledge of newly-learned vocabulary items

RKV 6 : Use new words to converse with peers in order to retain the knowledge of newly-learned vocabulary items

RKV 7 : Speak Thai with English loan-words in order to retain the knowledge of newly-learned vocabulary items

RKV 8 : Keep words as the computer background in order to retain the knowledge of newly-learned vocabulary items

RKV 9 : Keep word cards or word charts in one's bedroom in order to retain the knowledge of newly-learned vocabulary items

RKV 10 : Keep words as rhymes or songs in order to retain the knowledge of newly-learned vocabulary items

RKV 11 : Use pictures in order to retain the knowledge of newly-learned vocabulary items

4.4.3 Vocabulary Learning Strategies to expand their knowledge of new vocabulary items (EKV)

The vocabulary learning strategies under this main category are the strategies which were reported to be employed by 133 EST students in order to expand their knowledge of vocabulary items apart from those they have to learn for their classroom lessons. The strategies reported being employed were mainly for the outside classroom learning purpose other than their classroom lessons.

EKV 1 : Listen a radio program in English especially the one for language learning in order to expand one's knowledge of vocabulary

EKV 2 : Watch a television program in English especially the one for language learning in order to expand one's knowledge of vocabulary

EKV 3 : Surf the Internet especially the websites for language learning in order to expand one's knowledge of vocabulary

EKV 4 : Read different types of English printed materials, e.g. leaflets, brochures, textbooks or newspapers, in order to expand one's knowledge of vocabulary

EKV 5 : Play games in English, e.g. crossword, or hangman, in order to expand one's knowledge of vocabulary

EKV 6 : Practise translating from Thai into English and vice versa in order to expand one's knowledge of vocabulary

EKV 7 : Watch an English-speaking film with Thai-narrated scripts in order to expand one's knowledge of vocabulary

EKV 8 : Attend classes of every module regularly in order to expand one's knowledge of vocabulary

EKV 9 : Listen to English songs in order to expand one's knowledge of vocabulary

EKV 10: Do extra vocabulary exercises from different sources, e.g. books, newspapers or the Internet, in order to expand one's knowledge of vocabulary

In summary, the preliminary vocabulary learning strategy inventory for the present investigation was based on the self-report data provided by 133 students learning English for Science and technology at Suranaree University of Technology in trimester 3/2002 and the data were gathered between February and March 2003. Through the analysis of the data, thirty-one individual vocabulary learning strategies emerged from the student self-report data. These thirty-one vocabulary learning strategies have been classified according to the purpose which students reported trying to achieve. The purposes to be achieved were grouped into three main categories, i.e. discovery of meaning of new vocabulary items, retention of the meaning of newly-learned word, and expansion of vocabulary knowledge. These vocabulary learning strategies hopefully will be able to be eventually used to generate the vocabulary strategy questionnaire to

elicit information about the frequency of vocabulary learning strategy use by a larger number of SUT students.

4.6. Summary

The preliminarily proposed vocabulary learning strategy inventory for the present investigation resulted from the student self-report data comprises three main categories, i.e. , i.e. discovery of meaning of new vocabulary items, retention of the meaning of newly-learned word, and expansion of vocabulary knowledge. The discovery of meaning of new vocabulary items category consists of ten individual strategies; the retention of the meaning of newly-learned word category comprises eleven individual strategies; and the and expansion of vocabulary knowledge category comprises ten individual strategies. It is worth noting that the researcher has always recognised that the preliminary vocabulary learning strategy inventory for the present investigation is not comprehensive. However, the proposed vocabulary learning strategy inventory for the present investigation may be considered to be representative of the strategies employed by SUT students on a broad spectrum of learning situations at Suranaree University of Technology

As seen in Chapter 2, different researchers had different ways of categorising language learning strategies, depending on their own research, other researchers' work, or their review of literature in related areas. Though categorisation systems differed, some common features do exist. In other words, some vocabulary learning strategies appeared in many researchers' strategy categories even though they were referred to by different names. This is also the categorisation system for the present investigation. Although it is different from the other researchers' categorisation systems, some reported strategies appear in common with other researchers' categorisation such as the ones proposed by

Schmitt (1997); Sanaoui (1995) or Lawson and Hogben (1996). It is also worth noting that vocabulary acquisition strategies are personal in that some students may employ certain strategies while others do not. Furthermore, strategies may come from various places: they can be taught explicitly by the teacher or presented by course materials; they can be mimicked or taken up implicitly through observation or as suggested by others; students can develop them themselves; or they may use strategies that worked for them before in other areas and apply them to their current language learning situation (Winke, 2001). The next chapter will conclude the results as well as detailed discussion of the results of the present investigation. Finally, the implications and suggestions for future research will be presented.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, AND IMPLICATIONS FOR TEACHING AND LEARNING ENGLISH AT SURANAREE UNIVERSITY OF TECHNOLOGY

5.1. Introduction and Purpose of the Chapter

The main purpose of this last chapter is to summarise the principal findings of the present investigation in response to research questions presented earlier in Chapter 3. This is followed by a discussion of the implications arising from the research for the teaching and learning of English at Suranaree University of Technology with regard to vocabulary learning. Then, the contributions of the present investigation to related areas are considered. Finally, the limitations of the present investigation and proposals for future research are presented.

In Chapter 4, the researcher has systematically attempted to identify the reported vocabulary learning strategies by 133 language learners learning English for Science and Technology at Suranaree University of Technology obtained through an open-ended strategy questionnaire. Arising out of the open-ended vocabulary learning strategy questionnaire for the present investigation are significant findings in students' strategy. As mentioned earlier, the present investigation has not been designed to examine strategy use of language learners in relation to any variables or examine the effectiveness of any vocabulary learning strategies. Rather, the emergent individual vocabulary learning strategies have been explored.

5.2. Summary and the Discussions of the Research Findings

The present investigation has reported on the research findings of students' reported vocabulary learning strategy use in general. These findings also form responses to the research questions and are discussed further below.

- **What types of vocabulary learning strategies were reported being employed by EST students at Suranaree University of Technology?**

In response to the research question posed to the participants, the result of the data analysis has revealed that altogether thirty-one individual vocabulary learning strategies have been reported being employed by the participants in order to achieve three different purposes when encountering new vocabulary items especially those for the classroom lessons. Three main purposes of strategy use can be preliminarily classified. They are: 1) to discover the meaning of new vocabulary items comprising ten individual strategies; 2) to retain the knowledge of newly-learned vocabulary items comprising eleven strategies; and 3) to expand their knowledge about vocabulary comprising ten individual strategies. The first two purposes are for classroom lessons and the third one is for outside classroom learning and mainly are learner-initiated activities. Since the main focus of the present investigation is on vocabulary learning strategies for classroom learning; therefore, no discussions about the third category will be involved. What follow are detailed discussions about the major findings in association with the past research work in the field.

Category 1: Strategies to discover the meaning of new vocabulary items (DMV)

The vocabulary learning strategies under this main category are the strategies which were reported to be employed by 133 EST students in order to discover the meaning of new vocabulary items they frequently encounter. The strategies reported being employed were mainly for the classroom learning purpose while some for vocabulary other than their classroom lessons.

DMV 1 : *Use a Thai-English dictionary to discover the meaning of new vocabulary items*

DMV 2 : *Use an English-Thai dictionary to discover the meaning of new vocabulary items*

DMV 3 : Use an English-English dictionary to discover the meaning of new vocabulary items

DMV 4 : Guess the meaning from the context to discover the meaning of new vocabulary items

DMV 5 : Ask one's classmate or friend to discover the meaning of new vocabulary items

DMV 6 : Ask one's teacher to discover the meaning of new vocabulary items

DMV 7 : Ask someone other than one's teacher, classmate or friend to discover the meaning of new vocabulary items

DMV 8 : Look at the word roots, prefixes or suffixes to discover the meaning of new vocabulary items

DMV 9 : Use an on-line dictionary to discover the meaning of new vocabulary items

DMV 10 : Use an electronic dictionary to discover the meaning of new vocabulary items

When taking a close look at the individual vocabulary learning strategies under this category, to discover the meaning of new lexical items, it is found that there are three main strategy groups have been reported being employed by the participants. These strategy groups are: dictionary use, social strategies, and contextual reliance.

With regard to dictionary use, Summers (1988) claims that dictionary use plays an important role in EFL learning. For the present investigation, the participants reported making use of different types of dictionaries available including hard copies as well as electronic ones. These strategies are very common for most foreign language learners and have been reported in different research work. Examples are Schmitt (1997), Sanaoui (1995), and Kudo (1999). For the present investigation, some students who reported using dictionaries to discover the meaning of new lexical items claimed that 'it is an easy way to find the meaning of a new word'. However, this is not always easy when it comes to the word with more than one meaning as a few students reported, 'at times I do not know which meaning to choose from because there are many meanings and I cannot decide which one should be the appropriate one' (translated script). The dictionaries used are either bilingual, i.e. English-Thai or

Thai-English, or monolingual dictionaries, i.e. English-English. With this regard, Thompson (1987) has demonstrated both advantages and disadvantages of both types of dictionaries. In terms of monolingual dictionaries, he maintained that 'monolingual dictionaries for foreign language learners tend to be unquestioningly regarded as better than bilingual dictionaries. However, monolingual dictionaries have serious disadvantages in many language teaching situations: particularly learners will often not know which word to look up, and even when they do, the definitions in the foreign language may not help them very much. Bilingual dictionaries are potentially more efficient and more motivating sources of information for language learners' (p. 282). He also concludes that 'monolingual dictionaries have a very important role to play at the most advanced levels. Basically, for learners below this level, the bilingual dictionary can do all the useful things that the monolingual dictionary can do' (p. 286). Summers (1988) has supported the use of dictionaries so as to discover the meaning of new foreign words that 'dictionary use is a valid activity for foreign learners of English, both as an aid to comprehension and production' (p. 111). Furthermore, the dictionary is a good resource in resonance with other strategies such as making guesses about new words encountered in reading texts, asking the teacher for explanations or asking help from their classmates.

Another main group of strategies which have also been reported by many students deals with asking other people who they think know English better than themselves such as teachers, classmates, or anyone who knows English. Some students reported that 'my teacher is the best source of knowledge as he is very smart and can answer any questions the students ask. Hence, I normally ask my teacher for the translation' (translated script). However, teachers are not always an ideal resource person as a few students do not want to approach their teachers. Rather,

they prefer asking their classmates. As one participant reported, 'I think my friends are better than myself and I can rely on him or her when I don't know the meaning of a new word. I don't really want to ask my teacher because I am afraid that he or she will ask me a question and I will feel embarrassed if I cannot answer the question' (translated script).

The last major group of strategies in this category deals with contextual reliance. Many students reported using this strategy as a priority to find out the meaning of a new word, 'when I encounter a new word, the first thing I do is look at the sentence as a whole and then try to guess the meaning. If I cannot guess, I'll turn to a dictionary or ask my classmate' (translated script). Regarding using contextual clues to discover the meaning of new foreign words, Judd (1978 cited from Nation, 1982) pointed out that '...in order to grasp the meaning of a word or a phrase, students must be aware of the linguistic environment in which the word or phrase appears' (p. 73). However, it is not always easy for students to get the meaning from the context because at times the context alone does not provide enough information or many words are not always interpreted through the context they appear and more contexts or environments are needed. Nation (1982) asserted that learning words in context would not help the learning a word form, as the context of a text is remembered much better than its formal elements. Thus, except by providing a number of different environments, it is difficult to see how context does help the initial learning of a new word and the use of contextualised material might be less efficient than the use of word lists (Morgan and Bailey, 1943 cited from Nation, 1982) even though context may bring less frequent use of dictionary and time spent on learning new words.

Category 2: Strategies to retain the knowledge of newly-learned vocabulary items (DMV)

The vocabulary learning strategies under this main category are the strategies which were reported being employed by 133 EST students in order to retain the knowledge of newly-learned vocabulary items. The strategies reported being employed were mainly for the classroom learning purpose while some for vocabulary other than their classroom lessons. These strategies include:

RKV 1 : *Memorise with or without a word list in order to retain the knowledge of newly-learned vocabulary items*

RKV 2 : *Keep a vocabulary notebook in order to retain the knowledge of newly-learned vocabulary items*

RKV 3 : *Group words based on the synonymity or antonymity in order to retain the knowledge of newly-learned vocabulary items*

RKV 4 : *Associate new words with the already-learned ones in order to retain the knowledge of newly-learned vocabulary items*

RKV 5 : *Use new words in writing in order to retain the knowledge of newly-learned vocabulary items*

RKV 6 : *Use new words to converse with peers in order to retain the knowledge of newly-learned vocabulary items*

RKV 7 : *Speak Thai with English loan-words in order to retain the knowledge of newly-learned vocabulary items*

RKV 8 : *Keep words as the computer background in order to retain the knowledge of newly-learned vocabulary items*

RKV 9 : *Keep word cards or word charts in one's bedroom in order to retain the knowledge of newly-learned vocabulary items*

RKV 10 : *Keep words as rhymes or songs in order to retain the knowledge of newly-learned vocabulary items*

RKV 11 : *Use pictures in order to retain the knowledge of newly-learned vocabulary items*

The strategies reported being employed in order to retain the knowledge newly-learned lexical items by the participants for the present investigation are consistent with past research work, e.g. Sanaoui (1995), Porte (1988), Hulstijn (1997). In general, we can see that the strategies employed do not deal with deep cognitive processes. This might be that most, if not all, the participants for the present investigation are those who are not very successful in language learning, judging from

their perception of language ability as shown in Chapter 3. However, this is not the purpose of the investigation to examine how successful or unsuccessful language learners employ vocabulary learning strategies. Rather, the present investigation concentrated solely on lexis, seeking to obtain comprehensive accounts of learners' approaches to vocabulary learning. In language learning, retention needs to persist for at least long enough for learning to be reinforced in a following lesson (Nation, 1982). As revealed through the data analysis, the participants reported different types of strategies to help them retain the knowledge of newly-learned words. These strategies can be discussed under the major groups as: rote learning or rote rehearsal; note-taking; and keyword strategies.

In respect of rote learning or rote rehearsal and vocabulary learning, a few past researchers have found that this method or strategy has been used by foreign language learners, e.g. Naiman, Frolich, Stern and Todesco (1975); O'Malley and Chamot (1990); Wenden and Rubin (1987); Gu, (2002); Gu and Johnson (1996); Kudo, (1999); and Sanaoui (1995). This strategy has been employed by language learners to commit new foreign words to memory and has been regarded as the first and easiest strategy people pick up and use. Naturally language learners keep repeating new words until they can be recognised (Gu, 2003). In repeating new vocabulary items, the learners may repeat the word mentally or aloud several times when they encounter it, or they may return to a lexical item sometime after they have encountered it and repeat it (Sanaoui, 1995). In addition, Oxford (1990) pointed out that the exact form of rehearsal could be just a simple reading or writing of the word, the repetition of the word and the meaning, or repetition may involve some form of structuring. It is not surprising to see that most of the foreign language learners have employed this strategy more frequently than others. This is also reported in Lawson

and Hogben (1996, p. 120) that the most frequently used procedures by Italian language learners involved some form of repetition. Not only did students use repetition in almost two-thirds of the opportunities, but repetition was used on most of the words by most of the students.

Another group of strategies which has been reported here is note-taking, may be in the form of vocabulary notebooks, word cards or wordlists. After getting information about a new word, learners may take notes (Gu, 2003); however, McCarthy (1990) has pointed out that the learners differ in what they do in note-taking, when they take notes, and how they take notes.

Last but not least, regarding the strategies in the group of 'keywords', a few strategies of this major group were also reported being employed. The 'keyword' method involves linking an English word to another English word which sounds like the 'to be learned foreign word'. In addition, Cohen (1987, p.51) has discussed the major types of associations or linking consciously used by learners to improve their performance in learning new words. These types of associations can be created:

- By linking the words to the sound of a word in the native language, to the sound of a word in the language being learned, or to the sound of a word in another language.
- By attending the meaning of a part or several parts of the word.
- By noting the structure of part of the word (e.g. the root or an affix) or all of it.
- By placing the word in the topic group in which it belongs.
- By visualizing the word in a written context or in isolation.
- By linking the word to the situation in which it appeared.
- By creating a mental image of the word.
- By associating some physical sensation to the word

In terms of the effectiveness of this type of strategy, according to Gruneberg and Sykes (1991), a large number of studies have recently shown that the keyword method of vocabulary acquisition considerably enhances the rate of retention of foreign words. However, It might be argued that even if the keyword methods were

no more effective than conventional methods of vocabulary acquisition, if students found their use more enjoyable and interesting, then this in itself would be enough reason to utilize the technique in foreign language learning.

In conclusion, the findings of the present investigation are generally consistent with the previous studies as shown in Chapter 2 in terms of students' employment of strategies in learning new foreign vocabulary items. The strategy classification has been carried out and similar to a few of past researchers'. As mentioned earlier, on the whole the strategies reported being employed by students learning English for Science and Technology at Suranaree University of Technology do not involve mental processes for lexical acquisition. However, an implication of the findings of the present investigation have revealed that learners' practices for vocabulary learning are an important aspect of lexical learning that merits future attention. Although the findings do not provide insight into mental processes for vocabulary learning, understanding learner's habits of study contributes to a better understanding of how they come to learn the lexis of the target language, in this case, English. Another implication that can be drawn from the findings of the present investigation is that students should be encouraged to use 'keyword' strategies because of their effectiveness in enhancing the retention. Another strategy which has been used by students and should be encouraged to use for discovering the meaning of new words is guessing from context. This has been evidenced in Seibert (1945 cited in Nation, 1982) of the high possibility of success in guessing the meaning of words from context. Trained learners can guess between 60% to 80% of the unknown words in a text using only context clues. Learners should be given guidance and practice in the techniques of guessing from context because this will be valuable both in learning new words and in establishing words already studies in lists.

5.3. Contributions of the Present Investigation

The present investigation has some significant contributions to the area of vocabulary learning strategies. As previously seen in Chapter 2, there has been no empirical research work on vocabulary learning strategies carried out with Thai students. This present investigation has offered the perspective of vocabulary learning strategies exclusively employed by students learning English for Science and Technology and is therefore regarded as the first empirical research work in the field with Thai university students.

5.4. Limitations of the Present Investigation and Proposals for Future Research

The present investigation has been valid and valuable in addressing the primary research question, which are to preliminarily explore types of vocabulary learning strategies reported by students learning English for Science and Technology at Suranaree University of Technology. However, in carrying out the research, certain limitations have been apparent, and areas for possible future research have been discerned. Looking first at the limitation issue, the researcher would wish to note critically that:

- the research methods should have been triangulated, i.e. semi-structured student interviews or tasks for think-aloud procedure should have been included. The researcher for the present investigation realised that it may enable a researcher to discover other aspects, for example, students' attitude toward or beliefs about vocabulary learning in English. This may give a clearer picture why students, on a whole, did not report using any strategies involving mental processes.
- the research population should have been more or less the same especially by field of study where Engineering students made up slightly more than fifty per cent of

the subjects which Information Technology and Public Health were only about a fourth of the subjects.

Notwithstanding the limitations, the research is nonetheless valid, but the researcher acknowledges that some areas might justify further research. These areas could include the following:

1. As shown in the literature review section in Chapter 2, it can be seen that a larger amount of research work on vocabulary learning strategies has been carried out with students learning at the Tertiary level outside Thailand. More research work in the area needs to be carried out with a wider range of populations in different contexts, i.e. secondary school students or adult language learners in Thailand.
2. A research on vocabulary learning strategies based on the findings of present investigation should be used as a survey research in order to examine vocabulary learning strategy use by a larger group of language learners in Thailand.
3. A comparison of teaching styles or habits of teachers teaching different groups of students may be made in order to understand vocabulary learning strategy use better. The teaching styles or teaching habits may include teaching methods, content areas, teacher's expectation and language skills provided to students. The nationality of teachers may also be taken into consideration.

5.5. Conclusion

The present investigation has been conducted in a data-based, systematic, and non-judgemental descriptive and exploratory manner. It has contributed to the field of research on vocabulary learning strategies in terms of types of vocabulary learning strategies. The main contribution of the present investigation has been focal point of the investigation which exclusively examines and preliminarily explores vocabulary learning strategies of students learning English for Science and Technology at

Suranaree University of Technology. The main methods of data collection and data analysis have been carried out qualitatively.

Lastly, the researcher for the present investigation has suggested some implications arising out of the research findings for the teaching and learning of English to students at Suranaree University of Technology and may be able to apply where the context is similar in Thailand. Limitations of the present investigation and some proposals for future research have also been put forward. The researcher believes that with appropriate instruments for eliciting vocabulary learning strategies, as well as a research design as presented in Chapter 3, a researcher can gain further insights into how students deal with language learning especially new vocabulary items. It is worth noting that 'what learners do while studying words is more important than how motivated they are, how hard they work, how much time they spend and the number of repetitions of each word' (Nation, 1982, p. 25). Furthermore, as shown in past research, it is highly recommended that students try different strategies in order to learn new words in English. This is because no single strategy has been proved the best of all. Finally, such variables as teachers' teaching styles; students' language proficiency levels; learner belief in language learning; or students' socio-economic, could have an impact on such research when having been taken into account.

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