การใช้กลวิธีการเรียนโดยนักศึกษาเวียดนาม ระดับมหาวิทยาลัยกลุ่มสาขาวิทยาศาสตร์ที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ

นายเซือง ดึ๊ก มิงห์

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรดุษฎีบัณฑิต
สาขาวิชาภาษาอังกฤษศึกษา
มหาวิทยาลัยเทคโนโลยีสุรนารี
ปีการศึกษา 2555

LANGUAGE LEARNING STRATEGIES USED BY VIETNAMESE EFL SCIENCE-ORIENTED UNIVERSITY STUDENTS

Duong Duc Minh

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in English Language Studies

Suranaree University of Technology

Academic Year 2012

LANGUAGE LEARNING STRATEGIES USED BY VIETNAMESE EFL SCIENCE-ORIENTED UNIVERSITY STUDENTS

Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

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เซือง ดึ๊ก มิงห์ : การใช้กลวิธีการเรียนโดยนักศึกษาเวียดนาม ระดับมหาวิทยาลัยกลุ่มสาขาวิทยาศาสตร์ที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ (LANGUAGE LEARNING STRATEGIES USED BY VIETNAMESE EFL SCIENCE-ORIENTED UNIVERSITY STUDENTS) อาจารย์ที่ปรึกษา : รองศาสตราจารย์ ดร.ชาญณรงค์ อินทรประเสริฐ, 324 หน้า

ตั้งแต่ต้นปีคริสต์ศักราช 1980 นักวิจัยที่ศึกษาเกี่ยวกับกลวิธีการเรียนรู้ภาษามีแนวโน้มให้ความสนใจกลวิธีการเรียนภาษาของผู้เรียน โดยผู้เรียนภาษาดังกล่าวได้แบ่งเป็น กลุ่มเรียนเก่งหรือประสบความสำเร็จและกลุ่มที่เรียนไม่เก่งหรือไม่ประสบความสำเร็จ ในระยะหลังนักวิจัยได้หันมาศึกษาปัจจัยที่เชื่อว่ามีความสัมพันธ์กับการใช้กลวิธีการเรียนของผู้เรียน อย่างไรก็ตามยังมีงานวิจัยน้อยมากที่ศึกษากับผู้เรียนภาษาที่เรียนภาษาอังกฤษเป็นภาษาต่างประเทศ โดยเฉพาะในบริบทของประเทศเวียดนาม

กลวิธีการเรียนภาษาในงานวิจัยนี้หมายถึงพฤติกรรมหรือกระบวนการคิดในขณะที่เรียนซึ่งพฤติกรรมการเรียนดังแล้วอาจจะสามารถสังเกตได้ (พฤติกรรมหรือเทคนิค) หรือไม่สามารถสังเกตได้ (ความคิดหรือกระบวนการของจิต) ที่นักศึกษาสายวิทยาศาสตร์ระดับมหาวิทยาลัยชาวเวียดนามใช้เพื่อเพิ่มประสิทธิภาพการเรียนรู้ภาษาอังกฤษ ซึ่งการวิจัยนี้มีวัตถุประสงค์ 1) เพื่อศึกษาและอธิบายประเภทของกลวิธีการเรียนรู้ภาษาของนักศึกษาสายวิทยาศาสตร์ระดับมหาวิทยาลัยที่ใช้ในการเรียนรู้ภาษาอังกฤษ 2) ศึกษาความแตกต่าง ความถี่ของการใช้กลวิธีการเรียนรู้ของนักศึกษา โดยแบ่งตามเพศ (ชาย และหญิง), สาขาวิชา (วิทยาศาสตร์ และเทคโนโลยี และวิทยาศาสตร์สุขภาพ), การรับรู้ขนาดของชั้นเรียน (ขนาดใหญ่ ขนาดกลางและขนาด เล็ก), ทัศนคติต่อการเรียนรู้ภาษา (เชิงบวก และเชิงลบ), และระดับของความสามารถทางภาษา (สูง ปานกลาง และต่ำ) และ 3) ศึกษาความสัมพันธ์ระหว่างความถี่ของการใช้กลวิธีการเรียนรู้ของนักศึกษาและตัวแปรอิสระทั้งห้าตัวแปร กลุ่มตัวอย่างของการศึกษาครั้งนี้คือนักศึกษาระดับปริญญาตรีสายวิทยาศาสตร์ 645 คนจากมหาวิทยาลัย 6 แห่งในตอนเหนือของประเทศเวียดนาม เครื่องมือที่ใช้ในการเก็บข้อมูลได้แก่ การสัมภาษณ์แบบกึ่งโครงสร้างและแบบสอบถาม สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ ค่าเฉลี่ย การวิเคราะห์ค่าความแปรปรวน (ANOVA), การทดสอบ Scheffé และการทดสอบไคสแควร์ ผลการศึกษาพบว่าประเภทของกลวิธีการเรียนภาษามีสองประเภทใหญ่ๆได้แก่กลวิธีส่งเสริมการเรียนรู้เฉพาะทักษะทางภาษา และกลวิธีการส่งเสริมความรู้การเรียนรู้ทักษะภาษาอังกฤษทั่วไป โดยภาพรวมพบว่า นักศึกษาสายวิทยาศาสตร์ระดับมหาวิทยาลัย ใช้กลวิธีการเรียนรู้ในระดับปานกลางและพบว่า นักศึกษารายงานการใช้กลวธีที่แตกต่างกันตามเพศ สาขาวิชา ขนาดของชั้นเรียน

และระดับความสามารถทางภาษาอย่างมีนัยสำคัญ ส่วนการใช้กลวิธีในการเรียนรู้ภาษาและทัศนคติต่อการเรียนรู้ภาษาไม่พบความแตกต่าง

สาขาวิชาภาษาอังกฤษ ลายเซ็นนักศึกษา _____

ปีการศึกษา 2555 ลายเซ็นอาจารย์ที่ปรึกษา _____

DUONG DUC MINH : LANGUAGE LEARNING STRATEGIES USED BY VIETNAMESE EFL SCIENCE-ORIENTED UNIVERSITY STUDENTS. THESIS ADVISOR : ASSOC. PROF. CHANNARONG INTARAPRASERT, PhD., 324 PP.

LANGUAGE LEARNING STRATEGIES/SCIENCE-ORIENTED STUDENTS/EFL

Since the early 1980s, researchers in the field of language learning strategy have tended to focus on how language learners dealt with their language learning. These language learners have been classified as good /successful learners or poor/ unsuccessful learners. Recently, an alternative approach used by researchers has been to study some of the factors which are believed to have some sort of relationship with individual students in their choice of learning strategies. However, very few research works have been carried out with language learners learning English as a foreign language (EFL) especially in the context of Vietnam.

Language learning strategies (LLSs) have been defined for the present investigation as conscious behaviours or thought processes performing learning actions, whether they are observable (behaviours or techniques) or unobservable (thoughts or mental process), that Vietnamese science-oriented university students themselves reported using in order to enhance their English language learning.

The present investigation aims to investigate: 1) to examine and describe types of language learning strategies which science-oriented university students reported employing in learning the English language; 2) to explore patterns of variations in frequency of students' reported strategy use according to gender (male and female),

major fields of study (Science and Technology and Health Science), 'perceived' class size (large, optimum and small, attitude toward language learning (positive and negative), and level of language proficiency (high, moderate, and low); and 3) to investigate the relationships between frequency of students' reported strategy use and the five independent variables. The research subjects were 645 undergraduate science-oriented students in 6 universities in the north of Vietnam. Semi-structured interviews and a strategy questionnaire were used as the main methods for data collection. Descriptive statistics methods which include: mean frequency, analysis of variance (ANOVA), post-hoc Scheffé tests, and Chi-square tests were used to analyse the data. The findings reveal that two main LLS categories: specific language skills enhancement (SSE) and general language knowledge enhancement (GKE) were discovered and examined. In learning the English language, science-oriented university students, on a whole, reported medium frequency of strategy use. The findings also reveal that frequency of students' overall reported use of strategies varied significantly according to their gender, major fields of study, 'perceived' class size, and levels of language proficiency. No significant variations were found between students' language learning strategy use and their attitude toward language learning

School of Foreign Languages Student's Signature_____

Academic Year 2012 Advisor's Signature_____

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
EFL	English as a Foreign Language
ESL	English as a Second Language
Exp	Expert
Hi.	High
LLAQ	Language Learning Attitude Questionnaire
LLS	Language Learning Strategy
LLSI	Language Learning Strategy Inventory
LLSs	Language Learning Strategies
LLSQ	Language Learning Strategy Questionnaire
Lo.	Low
Lrg.	Large
HMU	Hanoi Medical University
HPMU	Hai Phong Medical University
HPU	Hai Phong University
HUST	Hanoi University of Science and Technology
Mod.	Moderate
Neg	Negative
Opt.	Optimum
Pos	Positive
RPT-SoS	Reading Proficiency Test for Science-oriented Students

LIST OF ABBREVIATIONS (Continued)

S.D.	Standard Deviation
Sml.	Small
SILL	Strategy Inventory for Language Learning
SPSS	Statistical Package for the Social Sciences
SUT	Suranaree University of Technology
TESOL	Teaching English to Speakers of Other Languages
TNUT	Thai Nguyen University of Technology
TUMP	Thai Nguyen University of Medical and Pharmacy

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To all the above, I owe an invaluable debt.

Duong Duc Minh

CHAPTER 1

BACKGROUND TO STUDY

1.1 Introduction and Purpose of the Chapter

This chapter is an introduction to the present investigation. It provides the background as well as the context for the present investigation. The subsequent section covers the rationales for the present investigation, the terms used for the study. Moreover, background of English learning and teaching in Vietnamese universities is introduced to put this study into context. The chapter ends by stating the research objectives, the benefits of the present investigations and the outline of the thesis.

Over the past 30 years, many researchers have conducted various research works in the field of language learning and teaching. Since the early 1980s, researchers in the field have tended to focus on how language learners dealt with their language learning. These language learners have been classified as good/successful learners or poor/unsuccessful learners. Stern (1975), Rubin (1975), and Naiman, Fröhlich, Stern and Todesco (1978) tried to find out what language learners known to be good or successful at language learning had in common. They found that good language learners are able to adapt their own learning styles which are suitable for them in learning the target language. O'Malley, Chamot, Stewner-Manzanares, Kupper and Russo (1985) also discovered that although students at all levels reported the use of an extensive variety of learning strategies, higher level students reported greater use of metacognitive strategies, i.e. strategies used by students to

manage their own learning. Furthermore, more and more researchers have paid attention to investigate strategies employed by good language learners (Ramirez, 1986; Chamot, 1987; Oxford and Nyikos, 1989; Green and Oxford, 1995; Ellis, 1997a; Griffiths, 2003, 2008; Lee, 2010; and Hashemi, 2011).

According to Griffiths (2004), although the research into language learning strategies used by successful/good and unsuccessful/poor language learners has produced some interesting insights, the picture which emerges is far from unified. An alternative approach used by researchers has been to study some of the factors which are believed to have some sort of relationship with individual students in their choice of learning strategies. Through an extensive review of available literature, we found that there are a number of factors affecting the use of learners' choice of language learning strategies. Examples are gender (e.g. Politzer, 1983; Ehrman and Oxford, 1989; Gu, 2002; Shmais, 2003; Griffiths, 2003; Kyungok, 2003; Peacock and Ho, 2003; Intaraprasert, 2000, 2004; Khalil, 2005; Chang, Chen and Lee, 2007; and McMullen, 2009), fields of study/majors field of study (e.g. Oxford and Nyikos, 1989; Intaraprasert, 2003; Peacock and Ho, 2003; Chang et al., 2007; Kyong and Oxford, 2008; McMullen, 2009; and Fewell 2010), cultural backgrounds (Oxford, 1990; Park, 1999; Peacock and Ho, 2003; and Ok, 2003), motivation and attitudes (e.g. Oxford and Nyikos, 1989; Ehrman and Oxford, 1989; Gardner and McIntyre, 1991; Cohen and Dörnyei, 2002; Park, 2005; Sadighi and Zarafshan, 2006; Kyong and Oxford, 2008; and Cetingöz and Özkal, 2009), learning style (Carson and Longhini, 2002; Ehrman and Oxford, 1990; Oxford and Anderson, 1995, 'perceived' class size (e.g. Coleman, 1991; Embi, 1996; and Intaraprasert, 2000), and levels of language proficiency (e.g. Oxford and Nyikos, 1989; Wharton, 2000; Intaraprasert,

2000; Embi et al., 2001; Shmais, 2003; Peacock and Ho, 2003; Griffiths, 2003; Liu, 2004; Lengkanawati, 2004; Khalil, 2005; Park, 2005; Prakongchati, 2007; Wu, 2008; Ying, 2009; Sriboonruang, 2009; Fewell, 2010; and Anugkakul, 2011)

With the review of the available literature and research works, it appears that very little research has been carried out with language learners learning English as a foreign language (EFL) especially in the context of Vietnam. Only a few research works have been found to be conducted with high schools (e.g. Hoàng, 1999; Huệ, 2004; and Hằng, 2008), and university students (e.g. Khương, 1997; Huyền, 2004; and Hiền, 2007). Most Vietnamese researchers have paid attention to explore language learning strategies used by successful language learners, and the relationship between gender and level of proficiency and learning strategy use (e.g. Hoàng, 1999; and Hiền, 2007). Such variables as 'perceived' class size, field of study, and attitude toward language learning have hardly been found to be investigated up to present. Furthermore, there is no research work carried out to investigate exclusively the language strategy use of science-oriented university students, with reference to five variables: 1) gender (male or female); 2) field of study (Science and Technology or Health Science); 3)'perceived' class size (small, optimum, or large); 4) attitude toward language learning (positive or negative); and 5) levels of proficiency (high, moderate, or low). To fill this gap, the present investigation aims to identify and compare types and frequency of language learning strategy use by Vietnamese science-oriented university students.

The present investigation has been designed to conduct under the 'research-then-theory' manner as termed by Frankfort and Nachmias (1996, p. 52) or 'theory-after-research' by Punch (1998, p.16), which refers to research work that ends up with

a theory explained from the data of the researcher has collected. The present investigation does not aim to reconfirm or test any theory about language learning strategy use by language learners. Rather, it has been designed to examine the relationship between five variables: 1) gender (male or female); 2) field of study (Science and Technology or Health Science); 3) 'perceived' class size (small, optimum, or large); 4) attitude toward language learning (positive or negative); and 5) levels of language proficiency (high, moderate, or low) and the frequency of language learning strategies used by Vietnamese science-oriented university students.

In conclusion, there are many variables related to the use of language learning strategies such as gender, field of study, motivation, levels of language proficiency, beliefs, and learning styles. However, it is not possible for the researcher of the present investigation to investigate all the variables mentioned in relation to the choice of language learning strategy use by Vietnamese science-oriented university students. As a result, the variables for the present investigation have been carefully selected; those variables which appear to be the most frequently examined by a number of researchers such as gender and language proficiency together with those which are likely to be neglected by most researchers such as 'perceived' class size, attitude toward language learning, especially in the Vietnamese settings. The theoretical framework and rationale for selecting and rejecting variables for the present investigation will be discussed in Chapter 3.

1.2 Terms Used in the Context of the Present Investigation

The following terms will be used frequently throughout the present investigation:

1.2.1 Language Learning Strategies

Language learning strategies (LLSs) in the present investigation are defined as behaviours or thought processes whether observable or unobservable, or both, that science-oriented university students generated and made use of to enhance their specific skills or general knowledge in learning the English language.

1.2.2 'Perceived' Class Size

'Perceived' class size in this investigation refers to the English class size as perceived by the students. It was classified into three different sizes which are small, optimum or large in the present investigation.

1.2.3 Science-oriented Students

'Science-oriented students' in this investigation refers to the undergraduate students who undertake their full-time degree majoring in 'Science and Technology' and 'Health Science' in six universities in the north of Vietnam. These universities include: Thainguyen University of Technology (TNUT), Thainguyen Medical and Pharmacy University (TUMP), Hanoi Medical University (HMU), Hanoi University of Science and Technology (HUST), Haiphong University (HPU), and Haiphong Medical University (HMU). These students are undertaking their English courses in the first two years at their universities as required by the curriculum.

1.2.4 Students' Language Proficiency Levels

Students' language proficiency levels refer to their language proficiency which was rated in three levels as 'high', 'moderate' or 'low'. These levels were

based on the test scores obtained through the researcher-constructed reading proficiency test for science-oriented students.

1.2.5 Attitude toward Language Learning

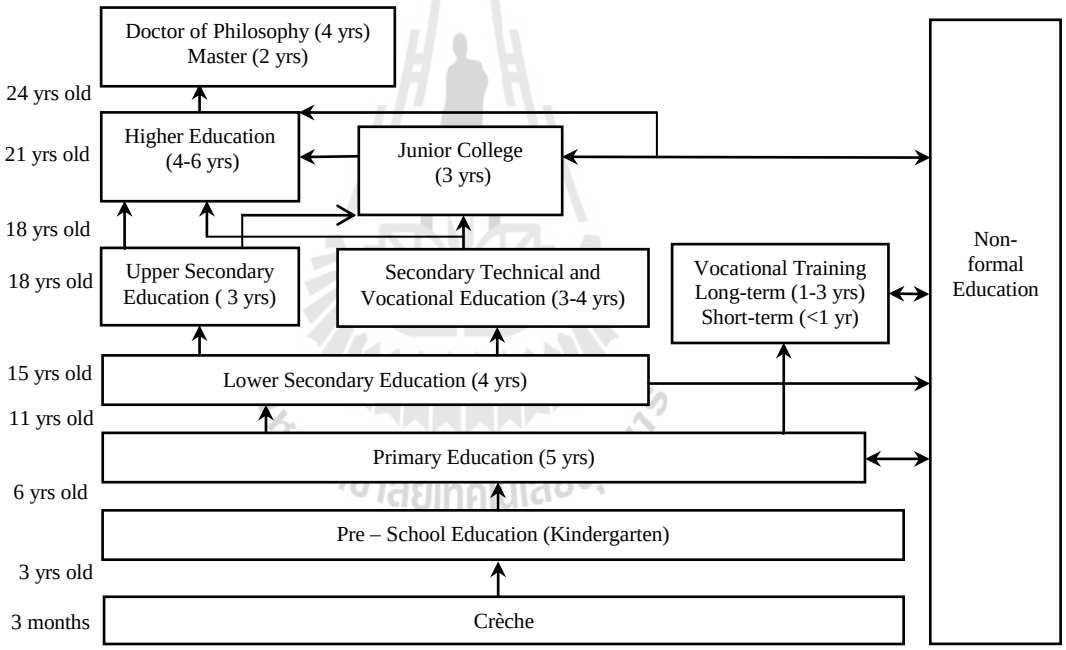
In this study, attitudes toward language learning refer to students' attitudes to language learning; their attitudes were classified as 'positive' or 'negative' based on their responses to the language learning attitudes questionnaire (see Section 3.8.3).

1.3 Background of English Language Learning and Teaching in Vietnamese Universities

1.3.1 Background of Vietnam Education System

A policy of "innovation" (or 'đổi mới' in Vietnamese) has been implemented to transform the country's economy as well as education since the Sixth National Congress of the Vietnamese Communist Party was organized in 1986. Presently, the Vietnamese education has undergone more than 20 years of renovation and has achieved important results such as increased enrollment, diversification of delivery modes and improved school infrastructure. The level of mass education has been increased, and the quality of education began changing positively (MOET, 2010). According to the Ministry of Education and Training, (2010, p 1), "the education system has begun to diversify in forms, modes of delivery and resources, and, step by step, is integrating in the common trends of world education. From a system dominated by public and formal schools, currently in the education system there are non-public schools, different forms of informal education, open learning, distance education and joint ventures with foreign institutions".

The National Education System is divided into five levels: pre-primary, primary, intermediate, secondary, and higher education. According to Education Law (2005, Section 4, Article 38), "university level training is implemented from four to six years of study depending on major field of study for the high school graduates; from two and a half years to four years for the vocational school graduates with the same major; from half a year to two years for college graduates with the same major (translated)". The detailed National Education System is presented in Figure 1.1 as follows:



Source: Vietnam Ministry of Education and Training (2010, p 1)

Figure 1.1 Vietnam National Education System

English language learning and teaching in Vietnam nowadays is considered as the key to open the world of academic and economic development. As a result, English has been the foreign language of the first choice for almost all learners.

English is a compulsory subject from the third grade in primary schools to tertiary level. It is also one of the four foreign languages (English, French, Russian, and Chinese) for the entrance examination in higher education level. Based on the Decision No. 1400/QĐ-TTg (2008) and National Education Curriculum Framework of the MOET (2005), in primary and secondary schools, on average, each class has 3 periods of English per week (45 minutes per period), nearly 90 periods or more per year. According to the present English program, students learn more than 900 periods of English language from primary school to upper secondary school.

1.3.2 Background of the English Language Learning and Teaching in Vietnamese Universities

According to the Decision No. 47/2001/QĐ-TTg (2001) on "Higher Education Network Project, 2001-2010" and the Resolution No. 14/2005/NQ-CP (2005) on "Basic and Comprehensive Innovation of Vietnam Higher Education, 2006-2020" of the Vietnamese Prime Minister, in recent years, a credit system has taken place at a number of Vietnamese universities to replace the older subject based system. In the new credit system, each course is assigned a credit amount. Each credit represents one hour of theoretical lectures plus one hour of preparation per week over a 14-16 week semester (Regulation No. 43/2007/QĐ-BGDĐT, 2007). A four-year program will normally require a total of 210 credits. Five-year programs require approximately 270 credits and six-year programs require approximately 320 credits (Decision No. 70/2007/QĐ-BGDĐT, 2007; and Decision No. 31/2003/BGD&ĐT, 2003). Of those credits, students are required to earn at least 6 credits for General English and at least 2 credits for English for Academic Purposes (EAP) or English for Specific Purposes (ESP). General English is required for students of all majors while EAP or ESP is

applied for science-oriented students. The goal of General English is to develop all four skills: reading, writing, speaking and listening, in order to facilitate with simple communications in social life and understand social contexts. English for Academic Purposes (EAP) or English for Specific Purposes (ESP), in another aspect, is to accomplish personal and academic tasks, to further study, and to promote life-long learning (MOET, 2010).

1.4 Research Objectives

The present investigation aims at examining and identifying language learning strategies employed by science-oriented students in learning English as a foreign language in northern Vietnamese universities. It also aims to explore how five investigated independent variables (gender, major fields of study, 'perceived' class size, attitude toward language learning, and levels of English proficiency), relate to students' use of learning strategies. To be specific, the aims of the present investigation are:

1. To investigate and describe type of language learning strategies which Vietnamese science-oriented university students employ;
2. To examine the relationship between frequency of students' use of language learning strategies and five variables: students' gender, major fields of study, students' 'perceived' class size, students' attitude toward language learning, and students' levels of English proficiency; and
3. To examine patterns of significant variation in the frequency of students' report of strategy use at different levels with reference to the five variables mentioned in (2) above.

1.5 The Benefits of the Present Investigation

Language learning strategy research works conducted with Vietnamese learners tend to explore overall strategies which Vietnamese learners employed or which strategies introduced by Oxford (1990) that Vietnamese learners reported employing frequently. Some other research works, simply explored students strategies employed in learning the English language, and how these strategies affected the students' language achievement, e.g. Huyền (2004); Hiền (2007). Furthermore, most of the studies on language learning strategies conducted with Vietnamese students learning English as a foreign language and concentrated on how to become successful learners by employing language strategies (Diệp, 1997). A few studies put the focus on variables that affected the choice of language learning strategies such as gender, major fields of study as in Khương (1997); Hằng (2008).To my knowledge, no research work has focused on such variables as 'perceived' class size or attitude toward language learning in Vietnam.

As a result, this study will be useful for both Vietnamese university teachers and learners as it investigated and clarified how the variables ('perceived' class size, gender, major fields of study, levels of proficiency and attitude toward language learning) relate to the students' choice of learning strategies in learning the English language.

The results of this study have provided some pedagogical implications for both language teachers and language learners studying Science and Technology and Health Science in Vietnamese universities. That is to say, language teachers may be able to make use of the findings to choose their suitable teaching methods and materials development in teaching to help their students employ effective strategies in

learning English. In addition, language learning students may be aware of their learning strategies and may adopt, modify and apply different learning strategies and choose strategies which are the most appropriate for themselves in learning the English language.

1.6 Outline of the Thesis

Chapter 1 provides the background of the present investigation, and then the key terms used for this present investigation have been defined. This chapter also introduces some background of English language teaching and learning in Vietnamese universities, points out the research objectives as well as the benefits of the present investigation to language learning and teaching.

Chapter 2 includes the review of relate literature on language learning strategies and past available research works. This chapter summarizes language learning strategies employed by second and foreign language learners and how language learning strategies defined and classified by different researchers such as Stern (1975; 1992); Rubin (1975; 1981); Carver (1984); Ellis and Sinclair (1989); Oxford (1990); O'Malley and Chamot (1990); Coleman (1991); Intaraprasert (2000); and Prakongchati (2007). Lastly, some of available research work on language learning strategies carried out with language learners outside Vietnam as well as the available research work carried out with Vietnamese students in Vietnam which contribute to the present investigation are presented.

Chapter 3 mainly deals with the research methodology in language learning strategies which was applied for the present investigation, e.g. classroom observation, oral interview, written questionnaire, think-aloud protocols and diary studies,

theoretical framework and rationale for selecting and rejecting variables. This is followed by research questions, framework of data collection methods for the present investigation, characteristics of research population as well as how to analyze, interpret and report data for the present investigation.

Chapter 4 deals with the language learning strategy inventory which emerged from the data obtained through student oral interviews conducted with 30 science-oriented students at 6 universities in the north of Vietnam. The chapter starts with the procedures of eliciting information from the 30 students, and then followed by a report of how the preliminary language learning strategy inventory was generated based on the interview data. This is followed by the method of how to validate the language learning strategy inventory. The chapter ends with the process used to generate the reading strategy questionnaire which was used as the main instrument for the second phase of data collection.

Chapter 5 discusses the researcher-constructed language proficiency test (RPT-SoS) used to determine the students' levels of language proficiency for the present investigation. The chapter begins with a literature review of tests, language testing, and how to construct a language test. Then, it demonstrates how the RPT-SoS for the present investigation was constructed. This is followed by the refinement, validity and reliability of the test. Finally, the students' levels of language proficiency is tabulated and presented.

Chapter 6 demonstrates and discusses the results of the research findings of the present investigation in terms of students' overall strategy use, frequency of use of strategies reported employing by 30 science-oriented university students in the two main categories proposed in the LLSI.

Chapter 7 presents data analysis for language learning strategy use in order to see the relationship between LLS use by 615 science-oriented students and their gender, major fields of study, 'perceived' class size, attitude toward language learning, and levels of language proficiency. Significant variations in frequency of use of language learning strategies according to the five independent variables by using analysis of variance (ANOVA) are also examined and presented. The chapter ends with examining variation of the students' individual strategy use for language learning purposes through the use of Chi-square tests according to the five examined variables.

Chapter 8 presents the research findings and a discussion of the research findings as well as the implications for the teaching and learning of English for science-oriented teachers and students in the north of Vietnam. The chapter ends by presenting the contributions of the present investigation to the related fields, the limitations of the present investigation and proposals for future research.

1.7 Summary

In this chapter, in an attempt to put the study in context, the researcher has given a description of the background of the present investigation, and then some terms used for this present investigation have been defined. This chapter also introduces some background of English language teaching and learning in Vietnamese universities, points out the research objectives as well as the benefits of the present investigation. The chapter ends with the outline of the thesis. The next chapter will provide the review of related literature in the field of language learning strategy, and previous research works on language learning strategy will be presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction and Purpose of the Chapter

This chapter mainly focuses on the review of related literature concerning language learning strategies. It starts with some brief discussion on how previous scholars define and classify language learning strategy. This is followed by a review of related literature and research works conducted in both Vietnam and other countries with regards to the characteristics of participants, focal points of the studies, methods of data collection, methods of data analysis, and results. The chapter ends with the summary.

Since the first research work has been carried out in the mid-seventies, researchers in different parts of the world have paid attention to research works in the field of language learning strategy. From the very first purpose of language learning strategy studies to "identify what good language learners report they do to learn a second or foreign language, or, in some cases, are observed doing while learning a second or foreign language" (Rubin, 1987, p. 19), research in the language learning strategy area has shown that language learning strategies have the potential to be "an extremely powerful learning tool" for language learners (O'Malley et al. 1985, p. 43).

Recently, according to Hismanoglu (2000), there has been a prominent shift in the field of language learning and teaching over twenty five years with more emphasis on learners and learning processes rather than on teachers and teaching processes. In

addition, the relationship between learners' characteristics and their language performance has also been considered. Many studies have been conducted to investigate language learning strategies that language learners employed to become successful in acquiring a second language or a foreign language. The importance of language learning strategies in making language learning process more effective and successful and in producing a positive effect on learners language use have been shown in many past research works (e.g. Rubin, 1987; O'Malley and Chamot, 1990; Chamot and O'Malley, 1994; Oxford, 1996; Cohen, 1998; and Griffiths, 2004).

Within the area of language learning, researchers have considered many aspects e.g. what makes a good language learner; how learners process new information; what kind of strategies they employ to understand; to learn or to retrieve the information; and what factors affect the learners' choice of language learning strategy use. Research works concerning what makes a good language learner have been conducted by Stern (1975); Rubin (1975); Naiman, Fröhlich, Stern and Todesco (1978); Ramirez (1986); Chamot and Küpper (1989); O'Malley and Chamot (1990); Oxford and Cohen (1992); and Griffiths (2008). Concerning factors affecting learners' language learning strategy use including motivation, gender, cultural background, attitudes and beliefs, type of task, age, learning style, attitudes, and tolerance of ambiguity were investigated by various researchers (e.g. Bialystok and Fröhlich, 1978; Bialystok, 1981; Hoàng, 1999; Sadighi and Zarafshan, 2006; Bernat and Lloyd, 2007; Kyoung and Oxford, 2008; and Alireza and Abdullah, 2010). Among these factors, learners' level of language proficiency, motivation, learning style, and gender have been shown to have a strong effect on learners' use of different types of strategies.

Regarding gender, most of the studies examining the influence of this variable on the choice of LLSs reported that females make greater use of LLSs than the male counterparts (e.g. Politzer 1983; Oxford and Nyikos 1989; Ehrman and Oxford 1989; Oxford and Ehrman 1995; Goh and Foong 1997; Wharton 2000; Intaraprasert 2000; Ok 2003; Liu 2004; and Sriboonruang 2009). McIntyre and Noels (1996) found that motivation plays an important role for language learners in choosing suitable learning strategies. Attitudes and motivation in LLSs were also explored by Ehrman and Oxford (1989); Oxford and Nyikos (1989); Yang (1999); Wharton (2000); Sadighi and Zarafshan (2006); and Bernat and Lloyd (2007). In addition, a high level of proficiency also had impact on LLSs use. O'Malley et al. (1985) investigated that intermediate learners used more cognitive strategies than metacognitive strategies. This is also consistent with the findings of many other research works conducted by Green and Oxford (1995); Park (1997); and Peacock and Ho (2003).

Ramirez (1986) found that the years of language learning affected the use of strategies which were indicated in Oxford's (1990) Strategy Inventory for Language Learning (SILL). Research works regarding the relationship between years of learning and LLSs use also were conducted by Brown (2002) and Ok (2003).

Besides, many other factors affecting LLS use to certain extent were found by researchers in the fields. Examples are 'years of study' (e.g. Oxford and Nyikos 1989; Kyungok, 2003; Sadighi and Zarafshan, 2006; and Rahimi, Riazi, and Saif, 2008), 'English language learning experience' (e.g. Intaraprasert, 2003; Prakongchati, 2007; and Khamkhien, 2010), 'learners' belief' (e.g. Horwitz, 1988; and Yang, 1999), different teaching conditions (e.g. Wharton, 2000), and attitudes toward language learning (e.g. Sadighi and Zarafshan, 2006; and Bernat and Lloyd, 2007).

In summary, in the field of LLSs, research works have explored the types and the nature of strategy use as stated above. However, the majority of these research works have been conducted in the context of ESL contexts where "the quality and quantity of the learners' access to the target language greatly differs from those in EFL contexts" (Brown 2002, p. 14). Recently, a few studies have been carried out in Asian contexts such as Korea, Taiwan, China, Hong Kong, Singapore, Thailand and Vietnam, but the contexts in Hong Kong or Singapore, where English is a second language, are different from those in Korea, Thailand or Vietnam where English is a foreign language. Such contextual limitations could not only result in differences in EFL learners' patterns of strategy use but also affect the degree and nature of the impact such variables as proficiency level and motivation exert on their LLS use. As a result, it is necessary to conduct more research work in the field of LLSs of EFL language learners in the specific context in order to help learners in choosing the proper language learning strategies in acquiring the target language.

Through the review of the previous research works in the first part of this chapter, the researcher has attempted to locate the present investigation in the context of previous work and the background knowledge upon which the present investigation has been designed and developed. This is followed by some definitions and classifications of language learning strategies proposed by previous researchers. At the end of this chapter, research works conducted in the field of language learning strategy are presented.

2.2 Definitions and Characteristics of Language Learning Strategies

The term *'language learning strategy'* has been defined by many researchers in various ways and in various aspects. Researchers have come up with their own definitions through their studies as well as in their own perceptions within their research works. There is still a considerable debate regarding an appropriate way of defining LLS among researchers. All the terms which have been used to describe strategies (e.g. technique, behavior, operation, action) and to account for their purpose (to acquire knowledge, to regulate learning, to make learning more effective) vary, but still, they have some points in common. This part aims to provide some definitions about this term as follows:

- Bialystok (1978, p. 76) defines language learning strategy as 'methods operated in the model of second language learning to exploit available information to increase the proficiency of second language learning'.
- Stern (1983, p. 405) states that language learning strategies are 'particular forms of observable learning behavior, more or less consciously employed by the learner'.
- Weinstein and Mayer (1986, p. 315) see language learning strategy as 'the behaviors and thoughts that a learner engages in during learning that are intended to influence the learner's encoding process'.
- Chamot (1987, p. 71) defines language learning strategy as 'techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information'.
- Wenden (1987, p. 6) offers the definitions of language learning strategy as 'the behaviours and thought processes that learners use in the process of

learning including any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information'.

- Wenden and Rubin (1987, p. 19) see language learning strategy as 'the behaviors and thought processes that learners use in the process of learning including any sets of operations, steps, plans, routines used by the learner to facilitate the obtaining, storage, retrieval, and use of information'.
- Rubin (1987, p. 23) defines language learning strategy as 'strategies which contribute to the development of the language system which the learner constructs and affects learning directly'.
- Oxford (1990, p. 8) defines language learning strategy as 'specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations'.
- Nunan (1991, p. 168) offers the definition of language learning strategy as 'the mental process which learners employed to learn and use the target language'
- McIntyre (1994, p. 185) sees language learning strategy as 'the techniques and tricks that learners use to make the language easier to master'.
- O'Malley and Chamot (1995, p. 1) states that language learning strategies are 'the special thoughts or behaviours that individuals use to help them comprehend, learn, or retain new information'.
- Ellis (1997, pp. 76-77) defines language learning strategies are 'particular approaches or techniques that learners employ to try to learn L2. They can be behavioural (for example, repeating new words aloud to help remember

them) or they can be mental (for example, using the linguistic or situational context to infer the meaning of a new word)'.

- Cohen (1998, p. 4) sees language learning strategy as 'learning processes which are consciously selected by the learner. The element of choice is important here because this is what gives a strategy its special character. These are also moves which the learner is at least partially aware of, even if full attention is not being given to them'.
- Brown (2000, pp. 122-127) defines language learning strategy as 'specific attacks that are made on a given problem. They are moment-by-moment techniques employed to solve problems passed by second language input and output'.
- Weinstein, Husman and Dierkin (2000, p. 727) offer a definition of language learning strategy as 'any thoughts, behaviours, beliefs, or emotions that facilitate the acquisition, understanding, or later transfer of new knowledge and skills'.
- Chamot (2001, p. 25) defines language learning strategy as 'the techniques or procedures that facilitate a learning task'.

Based on the samples of definitions mentioned above, we can see that different researchers have used different words to refer to the term "strategies", for example, 'the special thoughts or behaviours' (O'Malley and Chamot, 1990); 'technique' (Stern, 1992; Chamot, 2001); 'procedures' (Richards and Lockhart, 1994; Ellis, 1997; Chamot, 2001); 'moves' (Cohen, 1998); and 'action' (Allwright and Bailey, 1991). Furthermore, as Intaraprasert (2000, p. 20) states that defining LLSs is "subjective and problematic". There are some overlaps whether language learning

strategy are perceived as observable behaviours (e.g. Chamot, 1987; 2001; Ehrman and Oxford, 1989; Oxford, 1990) or as mental process that are unobservable behaviours, e.g. Nunan (1991) or as both, e.g. Ellis (1997) and O'Malley and Chamot (1990).

Furthermore, these definitions also reveal that language learners use language learning strategies either consciously, e.g. Stern (1983); Oxford (1990); Allwright and Bailey (1991); and Cohen (1998) or unconsciously, e.g. Nunan (1991) when processing new information and performing tasks in the language classroom in order to master or use the target language.

However, the definitions proposed by different researchers share some common characteristics as language learning strategies refer to students acts (conscious or unconscious, observable or unobservable) in processing information or performing tasks to achieve the target language successfully. These acts may directly or indirectly contribute to their language learning.

In conclusion, although different researchers have different definitions on language learning strategies, each researcher proposes a definition according to the context, and the setting or the subject characteristic in which the research has been conducted. As a result, language learners, in order to succeed in learning a language, have to attempt to find the quickest or the easiest ways to achieve the target language whether these ways are 'procedures', 'behaviours', 'techniques' or 'moves'.

2.3 Classifications of Language Learning Strategies

According to Oxford (1990, p. 17), "there is no complete agreement on exactly what strategies are; how many strategies exist; how they should be defined,

demarcated, and categorized; and whether it is – or ever will be possible to create a real, scientifically validated hierarchy of strategies; therefore, classifications conflicts are inevitable". Ellis (1994) affirms that 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 researcher. It is clear that, different researchers have different ways or their own criteria or system in classifying language learning strategies. As a result, their language learning strategy classifications may be based on their personal experiences as a teacher (e.g. Stern 1983, 1992), their own language learning strategy investigations (e.g. Stern 1975, 1983, 1992; Rubin 1975, 1981; O'Malley and Chamot 1990; Oxford 1990; Coleman 1991; and Intaraprasert 2000), or their reviews of their own research works or other researchers theories (e.g. Rubin 1975, 1981; Stern 1983, 1992; Carver 1984; and Ellis and Sinclair 1989).

What follows is the summary of language learning classifications which have been proposed by nine researchers in different settings. These works include Stern (1975; 1992); Rubin (1975; 1981); Carver (1984); Ellis and Sinclair (1989); Oxford (1990); O'Malley and Chamot (1990); Coleman (1991); Intaraprasert (2000), and Prakongchati (2007).

2.3.1 Language Learning Strategy Classification by Stern (1975, 1983, 1992)

The first classification in the field of language learning strategy was proposed by Stern (1975) and then modified in 1983 and 1992. In 1975, Stern drew up a list of ten strategies of good language learners derived from three main sources includes: 1) his own interpretation of language competence and the three main problems of second language acquisition; 2) his own experience as a teacher and learner; and 3) his

literature review of other researchers in the area of language learning strategies. The ten strategies of good language learners, proposed by Stern (1975, pp. 304-318, 1983, pp. 289-415) are as follows:

1. **Planning strategy** refers to a personal learning style or positive learning strategies.
2. **Active strategy** refers to an active approach to the learning task
3. **Empathetic strategy** refers to a tolerant and outgoing approach to the target language and empathy with its speakers
4. **Experimental strategy** refers to a methodical but flexible approach, developing the new language into an ordered system and revising this system progressively
5. **Formal strategy** refers to the technical know-how about to tackle a language
6. **Semantic strategy** refers to a constantly searching for meaning
7. **Practice strategy** refers to the willingness to practise
8. **Communication strategy** refers to the willingness to use the language in real communication
9. **Monitoring strategy** refers to the self-monitoring and critical sensitivity to language use
10. **Internalization strategy** refers to the developing of the target language more and more as a separate reference system and learning to think in it

In 1992, Stern reclassified his ten learning strategies into five main categories according to his experience as a language learner as well as a language teacher. His new classification shows that to be successful in learning a language, language learners probably employ not only the cognitive strategies, but also the affective strategies which include emotions, motivations and personality. Stern's (1992, pp. 262-266) new classifications include:

1. **Management and Planning Strategies**
   Language learners must:
   - decide what commitment to make to language learning
   - set himself reasonable goals
   - decide on an appropriate methodology, select appropriate resources, and monitor progress,
   - evaluate his achievement in the light of previously determined goals and expectations.
2. **Cognitive Strategies**
   - Clarification / Verification
   - Guessing / Inductive Inferencing
   - Deductive Reasoning
   - Practice
   - Memorization
   - Monitoring
3. **Communicative - Experiential Strategies**

- Techniques used to keep conversation going, e.g. using circumlocution, gesturing, paraphrasing, or asking for repetition and explanation

4. **Interpersonal strategies**
   - Self-monitoring and self-evaluation
5. **Affective strategies**
   - Influence of attitudes, emotions, motivation, and personality

2.3.2 Language Learning Strategy Classification by Rubin (1975, 1981)

Rubin (1975, pp. 41-50; 1981, pp. 117-131) proposes a classification of two language learning strategy categories which may help language learners directly or indirectly in the language learning process. Her language learning strategies classification, based on psychological characteristics (e.g. tolerance for ambiguity and empathy among others), consists of six direct strategies and two indirect strategies. These include:

A) Direct strategies

1. **Clarification / verification**: asking for an example of how to use a particular word or expression
2. **Guessing / inductive inferencing**: using clues from other items in the sentence/phrase, or key words in a sentence to guess
3. **Deductive reasoning** : inferring grammatical rules by analogy, or grouping words according to similarity of endings
4. **Practice**: experimenting with new words in isolation and in context, or using mirror for practice
5. **Memorization**: taking notes of new items with or without texts and definitions
6. **Monitoring**: correcting error in own/other's pronunciation, vocabulary, spelling, grammar, and style

B) Indirect strategies

1. **Create opportunities for practice**: initiating conversation with fellow student/teacher/native speaker, or creating situation with natives in order to verify/test/practice
2. **Production tricks**: using circumlocution and paraphrase to get message across, or repeating sentence or further understanding

We can see that Rubin includes communication strategies in her classification. According to Griffiths (2004), this is a controversial inclusion since learning strategies and communication strategies are seen by some as two quite separate manifestations of language learner behaviors. However, it is impossible to clarify clearly between communication strategies and language learning strategies. Ellis

(1994, p. 530) concedes that there is “no easy way of telling whether a strategy is motivated by a desire to learn or a desire to communicate”. In addition, Brown (2000, p. 127) confirms “in the arena of linguistic interaction, it is sometimes difficult to distinguish” between learning strategies and communication strategies.

2.3.3 Language Learning Strategy Classification by Carver (1984)

Keeping in mind that language learner strategies tend to be extrinsic and unplanned, Carver (1984, pp. 123-131) expanded the research work of Selinker (1972) and Tarone (1978; 1980) to propose a language learning strategies classification which is also called ‘plans’. In his classification, he focuses on learners’ strategies and self-direction in learning a language and the choice of language learning strategies is affected by learners learning styles and habits. In addition, he suggests that learner strategies are either overt or covert behaviour, conscious or unconscious, arising directly from learning styles and work habit. Carver’s language learning classification can be divided as follows:

1. **Strategies for coping with target language rules**
   - generalization, transfer from L1, simplification, reinterpretation, hypercorrection, and elimination of register differences
2. **Strategies for receiving performance**
   - inferring from probability and knowledge of the world, checking by rereading / asking for repetition / simplification / self-interpreting confirmation, predicting from context clues, and identifying key terms from frequency/knowledge of context/chance
3. **Strategies for producing performance**
   - repeating sentences/key elements oneself, labeling discourse elements, lifting elements of interlocutor’s language sentences/expressions/ideas, rehearsing before production, monitoring reception of message, and using routines
4. **Strategies for organizing learning**
   - contacting with teachers or peers

In Carver’s classification, learners’ strategies are divided into four groups which include: 1) strategies for coping with target language rules are a set of

strategies which are neutral with regard to production and reception; 2) strategies for receiving performance, are a set of strategies coping with the reception of language performance; 3) strategies for producing performance are a set of strategies dealing with how to produce language learning performance e.g. repeating oneself, or rehearsing before production; and 4) strategies for organizing learning, which are related to the learners' organization of the learning task including repletion, cognition, whole or part learning, concentrated on spaced learning, together with cooperative learning through social interaction.

2.3.4 Language Learning Strategy Classification by Ellis and Sinclair (1989)

Derived from the classification of O'Malley et al. (1985) which includes 26 strategies divided into 3 categories (i.e. metacognitive strategies, cognitive strategies, and social strategies), Ellis and Sinclair (1989) have developed their own classification by adding "communication strategies" category to their classification. Communication strategies are defined ealier by Ellis (1985, p. 182) as "psycholinguistic plan which exist as part of the language user's communicative competence. They are potentially conscious and serve as substitutes for production plans which the learner is uriable to implement". These strategies, which include paraphrase, advoidance, restructuring, code-swiching, foreignizing, literal translation and repetition, have been "almost exclusively studied in relation to oral production" (Martinez, 1996, p. 106). Ellis and Sinclair's (1989, pp. 151-154) classification is presented as follows:

1. **Metacognitive strategies**
   e.g. advanced organization, directed attention, selective attention, self- management, advance preparation, self-monitoring, delayed production, self-evaluation, and self-reinforcement.

2. Cognitive strategies

e.g. repetition, resourcing, directed physical response, translation, grouping, note-taking, deduction, recombination, imagery, auditory representation, key word memorization, contextualization, elaboration, knowledge transfer, inferencing, question for clarification.

3. Social strategies;

e.g. cooperative learning with other students and teachers

4. Communication strategies.

e.g. discussing or sharing ideas and experiences with other students or teachers.

2.3.5 Language Learning Strategy Classification by Oxford (1990)

Oxford's (1990) classification of LLSs consists of 62 strategies and is divided into two main categories: direct strategies and indirect strategies according to the aim of language learning strategies as being oriented towards the development of communicative competence. The two categories are further subdivided into 6 groups of strategies. The three groups that belong to the direct strategies are: memory strategies, cognitive strategies, and compensation strategies. The other three groups belonging to the indirect strategies are: metacognitive strategies, affective strategies, and social strategies. Items in the 6 groups of strategies are not independent, i.e. items in one category may appear in the other categories, and they have an interrelationship with each other.

The key feature of Oxford's classification is the distinction between 'direct' and 'indirect' strategies. Oxford defines 'direct strategies' as the direct class which "composed of memory strategies for remembering and retrieving new information, cognitive strategies for understanding and producing the language, and compensation strategies for using the language despite gaps". And the 'indirect strategies' as the indirect class which "made up of metagognitive strategies for co-ordinating the

learning process ,affective strategies for regulating emotions, and social strategies for learning with others'.

Although these categories still overlap and sometimes make readers and researchers confused, they are used by Oxford and many other researchers (e.g. Kyungok, 2003; Nam and Leavell, 2006; Kyong and Oxford, 2008; Rahimi, Riazi, and Saif, 2008; and Fewell, 2010). This is because, as Ellis (1994, p. 539) states "Oxford's taxonomy is perhaps the most comprehensive classification of learning strategies to date". A list of the sub-direct strategies and sub-indirect strategies are demonstrated below (Oxford, 1990, p. 17):

1. **Direct Strategies**
   - **1.1. Memory Strategies**
     - Creating mental linkages (e.g. applying images and sounds to learn words, laying things out in order, making association and reviewing, connecting words and phrases with sound, motion or touch).
   - **1.2. Cognitive Strategies**
     - Practising (e.g. repeating, working with sounds and writing, and using patterns);
     - Receiving and sending messages strategies (e.g. finding the main idea through skimming and scanning);
     - Analysing and reasoning (e.g. understanding meaning and expression, making new expression);
     - Creating structure for input and output (e.g. highlighting information and transferring highlighted information).
   - **1.3. Compensation strategies**
     - Guessing intelligently (e.g. using guestures);
     - Overcoming limitations in speaking and writing (e.g. avoiding communicating in the target language).
2. **Indirect strategies**
   - **2.1. Metacognitive Strategies**
     - Centering your learning (e.g. focusing to certain skills or language activities);
     - Arranging and planning your learning (e.g. organizing ideas);
     - Evaluating your learning (e.g. monitoring errors).
   - **2.2. Affective Strategies**
     - Lowering your anxiety (e.g. using deep breathing);
     - Encouraging yourself (e.g. creating positive feelings);
     - Taking your emotional temperature (e.g. creating competence atmosphere).
     -

2.3. Social Strategies

- Asking questions (e.g. generating responses from partners);
- Cooperating with others (e.g. cooperating with proficient learners);
- Emphathising with others (e.g. being aware of other thoughts and feelings).

2.3.6 Language Learning Strategy Classification by O'Malley and Chamot (1990)

O'Malley and Chamot (1990) have a different point of view in classifying language learning strategies. Based on their own research, they proposed a classification of language learning strategies which includes 3 categories: metacognitive, cognitive, and social/affective. Metacognitive strategies involve consciously directing one's own efforts into the learning task. Cognitive strategies are specified as learning steps that learners take to transform new materials, for example, inferencing, contextual guessing and relating new information to other concepts from memory. Social/affective strategies involve interaction with another person or taking control of language learners' own feelings on language learning. O'Malley and Chamot's classification is as follows:

1. **Metacognitive strategies**
   e.g. self-management, self-monitoring, self-evaluation of learning after the task completion
2. **Cognitive strategies**
   e.g. repetition such as previewing the organizing concept or principle, key word, inferencing
3. **Social/Affective strategies**
   e.g. cooperation, questioning for clarification, self-talk

2.3.7 Language Learning Classification by Coleman (1991)

Coleman (1991) proposed a classification of "strategies in the large class" after conducting a research with overseas participants who were in some of the in-service teacher development programs at University of Leeds. The list of the

strategies of his classification was provided by approximately 40 Thai teachers, most of them worked as university lecturers. These lecturers produced a list of 77 learning strategies and the obtained data were classified under 18 strategy types. In his classification, he added ‘environmental’ or ‘contextual’ strategies together with metacognitive, cognitive and social/affective strategies. Some characteristics in this new category seemed to overlap the social and metacognitive categories. However, his invention would help researchers to explore strategies that language learners employed in large class settings.

Coleman’s (1991, pp. 48-50) classification is presented as follows:

A. The strategies which are related to the taught programme
   1. Before the class
      e.g. preparing the lesson before coming to class
   2. In the class
      e.g. asking questions, or paying attention
   3. After class
      e.g. contacting the teacher and asking questions, or contacting friends

B. The strategies which are extra to the class
   e.g. mixing with English speakers, or using libraries or media
C. The strategies which are termed as `bucking the system'
   e.g. finding privileged information, or sitting near bright students

2.3.8 Language Learning Strategy Classification by Intaraprasert (2000)

Regarding classroom and outside classroom settings, Intaraprasert (2000) generated his own language learning strategy inventory according to *their being used in order to achieve particular language learning purposes, either classroom-related or classroom independent* (pp. 102-103). Intaraprasert (2000) proposed two main categories of language learning strategies: 1) classroom-related category, which consists of seven purposes and twenty nine individual learning strategies; and 2) classroom-independent category, which includes five purposes and twenty individual

learning strategies. Intaraprasert's (2000) language learning strategies classification is provided as follows:

A. Classroom-related category

1. To be well- prepared for the lessons
- studying the lesson beforehand
- trying some exercise in advance
- preparing oneself physically
- doing the revision of the previous lessons

2. To keep up with the teacher while studying in class
- listening to the teacher attentively
- attending the class
- taking notes while studying in class with teacher
- thinking to oneself along the line with the teacher

3. To get the teacher's attention in the classroom
- trying to have an interaction with teacher by asking or answering
- taking part in classroom activities
- trying to have an interaction with teacher outside the class time

4. To learn new vocabulary for the classroom lessons
- memorizing new vocabulary items with or without the vocabulary lists
- using a dictionary to check the meaning of a new vocabulary item either in Thai or English
- guessing the meaning of a new vocabulary from the contexts
- looking at the root or the form of new vocabulary items
- grouping new vocabulary items according to their similarity in meanings or spellings
- using new vocabulary items to converse with peers

5. To avoid being distracted while studying
- trying to get a seat in the front row
- trying not to talk with other students while studying
- sitting next to a bright or quiet student
- trying not to pay attention to what other students are doing while studying

6. To solve problems encountered in the classroom lessons
- asking the teacher in class either immediately or when appropriate
- asking the teacher after class
- asking a classmate or classmates either in class or outside class
- asking people other than one's regular teacher or classmates

7. To pass the English tests
- doing the revision of the lessons only for the examination
- practising tests from different sources
- joining the tutoring group
- attending extra-classes

B. Classroom-independent category

1. To expand one's knowledge of English vocabulary and expressions
- reading print materials in English
- playing games in English
- watching an English-speaking film
- listening to English songs

2. To improve one's listening skill
- watching an English speaking film

- listening to English songs or cassette tapes in English conversation
- listening to a radio programme in English
- watching TV programmes in English

3. **To improve one's speaking skill**
   - talking to oneself
   - trying to imitate a native speaker from media
   - conversing in English with peers, siblings, or foreigners
   - using a computer programme like 'chat' programme
   - going to a language school
4. **To improve one's writing skill**
   - corresponding in English by electronic mail (e-mail) or letter
   - practising writing sentences or essays in English
   - practising translating from Thai to English
5. **To acquire one's general knowledge in English**
   - seeking an opportunity to be exposed to English
   - going to a language school
   - reading printed materials in English
   - surfing the Internet

2.3.9 Language Learning Strategy Classification by Prakongchati (2007)

Prakongchati (2007, pp. 225-228) classified language learning strategies according to learners' both academic and non-academic learning performances to achieve particular L2 learning purposes. Her classification derived from the result of university freshmen student interviews and includes four main language learning strategy categories: 1) preparing oneself for classroom lessons which includes strategies before or after class lesson; 2) understanding while studying in class which involves strategies employed to help to understand what is learned in class; 3) improving one's language skills which covers strategies used to improve language skills; and 4) expanding one's general knowledge of English, i.e. strategies to help expand general knowledge of English outside the class which are presented as follows:

I. Preparing Oneself for Classroom Lessons

1. Before Class

- Studying the course details before hand
- Preparing oneself physically

- Attempting to attend the class
- Doing revision of the previous lessons

2. After Class

- Reviewing own notes/summary
- Attempting to revise today's lessons
- Doing homework or assignments
- Personally approaching the teacher by asking the teacher for clarification of what is learnt in class
- Practicing what is learned in class with the teacher
- Discussing L2 learning problems with the teacher

II. Understanding while Studying in Class

1. Intra-Personal Interaction

- Trying to get a seat in the front row
- Avoiding talking with other students while studying
- Taking notes while studying
- Thinking to oneself along with the teacher's instruction
- Trying to understand English by translating into Thai
- Consulting a dictionary

2. Inter-Personal Interaction

- Asking the teacher for clarification
- Double checking what is learned with friends /classmates
- Joining a language study group
- Choosing to sit near students proficient in L2
- Participating in the classroom activities

III. Improving one's Language Skills

1. Media Utilization

- Reading on-line materials (e.g. news, articles, tale stories, film scripts in English) to improve one's reading skill
- Reading printed materials such as books, magazines, newspapers in English to sharpen reading
- Reading any English-printed resources such as labels on drugs or consumer goods, computer instructions/functions in English to enrich the vocabulary and expressions apart from what one has learned in class
- Contacting with Thai or foreign friends through emails, instant messages (MSN) or SMS texts with computers or mobile phones to improve one's writing skill
- Watching English-speaking films to practice one's listening comprehension without looking at the Thai subtitles
- Watching television programs in English to help one familiar with the accents, tone of voice, and intonations
- Listening to English songs or cassette tapes of English conversations to practice one's listening skill
- Listening to radio programs in English to improve one's listening skill

- Imitating a native speaker from media such as films, songs, cassette tapes, TV shows to practice one's speaking skill

2. Non-Media Utilization

- Practicing writing with English texts such as poems, greeting cards, or diaries etc.
- Conversing in English with teachers, peers, siblings, or foreigners
- Talking to oneself in English

IV. Expanding One's General Knowledge of English

1. Media Utilization

- Practicing English with commercially packaged English program (e.g. TOEFL, IELTS, and Follow Me)
- Playing games for vocabulary enrichment such as English crossword puzzles
- Seeking out information in English through surfing the Internet

2. Non-Media Utilization

- Having extra tutorials (e.g. attending extra classes at a private language school, having a personal tutor teaching English at home, taking short English courses abroad)
- Translating English news, song lyrics, poems, etc. into Thai
- Giving tutorials to others like junior students, peers, or siblings
- Having own language learning notebooks
- Using a dictionary for vocabulary enrichment
- Practicing general English with family members
- Joining leisure or social activities to practice and improve English (e.g. joining English Camps, entering singing contests, going to a church on Sunday, etc.)

2. Non-Media Utilization

- Taking job to practice English (e.g. being a local/young guide in the hometowns, working part-time at a restaurant, where there are many foreign customers)

In conclusion, based on language learning strategy classifications mentioned above, it is clear that, different researchers have their own ways, their own criteria, and their own contexts to classify language learning strategies. However, the most common strategy categories are cognitive, metacognitive, and social/affective (Ellis and Sinclair, 1989; and O'Malley and Chamot, 1990) or direct, indirect strategies (Rubin, 1975, 1981; and Oxford, 1990). Obviously, their classifications seem to overlap, but as stated by Larsen-Freeman and Long (1991) they are not identical.

The present investigation aims to explore language learning strategies reported employing by Vietnamese science-oriented university students; therefore, the classification of language learning strategies would depend on the preliminary data obtained through the semi-structured interview. Some items in the classification may emerge from the interview results and some items may be adopted from previous researchers' classification if found appropriate.

2.4 Research Works on Language Learning Strategies

2.4.1 Research Works on Language Learning Strategies Conducted in Vietnam

Research works in the field of language learning strategies in Vietnam mainly focus on investigating overall strategy use which students employed in order to make themselves to be succeed in achieving the target language (e.g. Huyền, 2004; and Hiền, 2007), some others investigated the choice of strategy use in relation to variables such as, age and gender, level of proficiency (e.g. Khương, 1997; and Hoàng 2008). Table 2.1 below shows research works in the field of language learning strategy conducted in Vietnam.

Table 2.1 Research Works on Language Learning Strategies Conducted in Vietnam

Khương, L. Q. (1997). An Investigation of English Learning strategies of Vietnamese Learners at the Intermediate level of English proficiency	
Purposes of the Study	- to investigate LLSs used by late teen Vietnamese learners at the intermediate level of English proficiency
Participants	EFL university students majoring in English
Method(s) of Data Collection	Questionnaire
Investigated Variables	1. Age and 2. Level of proficiency
Method(s) of Data Analysis	Descriptive statistics
Results	High efficient university students prefer social strategies to metacognitive, compensation strategies and affective strategies are not much used
Hoàng, L. T. (1999). Research into language learning strategies of different groups of learners in Hue City	
Purposes of the Study	- to investigate factors affecting learners learning strategy choice
Participants	EFL high school and university students
Method(s) of Data Collection	1. Observation, 2. Interview, and 3.Questionnaire
Investigated Variables	1. Major 2. Factors affecting the choice of LLS use
Method(s) of Data Analysis	Descriptive statistics, and Grouping
Results	The strategy use was different depending on the kind of task, the group of learner, and the level of English proficiency. The students of English used strategies more effectively than the others. The groups with higher levels of proficiency used more strategies and used them more effectively than the ones with lower levels.
Huyền, T. T. T. (2004). Vocabulary Learning Strategies employed by Students of English at Quy nhon University	
Purposes of the Study	to explore strategies used in learning vocabulary
Participants	English major university students
Method(s) of Data Collection	Questionnaire and Interview
Investigated Variables	Attitude toward language learning
Method(s) of Data Analysis	Descriptive statistics, and Grouping
Results	Students use more direct strategies (Memory/Cognitive/Compensation strategies) than

Table 2.1 (contd) Research Works on Language Learning Strategies Conducted in Vietnam

Hiền, N. T. (2007). Pattern of Language Learning Strategy use of second-year EFL students and teachers' perception of such use	
	indirect strategies (Metacognitive/Affective/Social strategies. Attitudes toward language learning play an important role in learning vocabulary.
Purposes of the Study	- to investigate the use of LLSs, the relationship between LLS use and language achievement.
Participants	Students majoring in English
Method(s) of Data Collection	Questionnaire
Investigated Variables	Language achievement
Method(s) of Data Analysis	Descriptive statistics
Results	1. The findings showed the medium use of strategies among students 2. High frequency use of LLSs had a relationship to high achievement of students.
Hằng, D. T. (2008). Vocabulary learning strategies employed by Students at Hung Vuong gifted high school	
Purposes of the Study	- to explore LLS use of students - to investigate whether gender and field of study have impacts on the use of LLS
Participants	EFL high school students
Method(s) of Data Collection	Questionnaire
Investigated Variables	1. Gender and 2. Field of study
Method(s) of Data Analysis	Descriptive statistics
Results	1. There were no significant differences in LLS use between the males and females; 2. The English major made use of strategies more frequently than the non-English major.
Khamkhien, A. (2010). Factors Affecting Language Learning Strategy Reported Usage by Thai and Vietnamese EFL Learners	
Purposes of the Study	- to investigate the relationship between three variables and LLS use by university students
Participants	Vietnamese and Thai university students
Method(s) of Data Collection	Questionnaire
Investigated Variables	Gender, Motivation and Learning experience
Method(s) of Data Analysis	Descriptive Statistics, and *t*-test

Table 2.1 (contd) Research Works on Language Learning Strategies Conducted in Vietnam

Results	1. Amongst the three factors, motivation was the most significant factor affecting the choice of the strategies, followed by experience in studying English, and gender, respectively. 2. Following the taxonomy of Oxford's LLSs, the lowly-motivated and inexperienced Thai female students tend to use the six strategy categories less than their Vietnamese counterparts.

Notes: EFL stands for English as a Foreign Language; **LLS** stands for Language Learning Strategy; **QUAN** stands for Quantitative; **QUAL** stands for Qualitative

Hoàng (1999) carried out a research in order to find out the most preferred strategies for learning English, the different and similar strategies of different groups, factors affecting the learning strategy choice and the need of a training course in LLS in Hue, Vietnam. Eighty EFL learners at high school and university in Hue, Vietnam took part in his research; they were then divided into four groups according to their academic level. Questionnaires were generated based on previous class observation and interview and administered to all the learners. The result from his study showed that there were high correlations between the frequency and the usefulness of strategy use, and Vietnamese learners tended to be metacognitive learners. The result also showed that cognitive strategies were used the most frequently and social/affective strategies were used the least frequently among four groups of learners.

Huyền (2005) conducted a research study to explore strategies in learning vocabulary employed by English-major university students as well as the frequency of strategies used. Questionnaires based on Oxford's (1990) SILL were administered to

students to gather data for her study. Findings from her study showed that students used more direct strategies than indirect strategies.

Recently, regarding vocabulary learning strategies, Hằng (2008) carried out a study to explore vocabulary learning strategies which high school students employed, and the choice of strategies use in relation to their gender and majors. 67 male and female high school students majoring in Mathematics and English participated in her study. Questionnaire adopted from Oxford's (1990) SILL was administered to the students to collect data for the study. The results of the study showed that there was no significant difference in the choice of strategies use in learning vocabulary in terms of gender. Furthermore, the results also indicated that the English major students made use of strategies introduced in the questionnaire more frequently than the Mathematics students.

Hiền (2007) used Oxford's (1990) SILL as the main instrument to investigate the relationship between language learning strategy use and language achievement of 200 second year English major students. Results from the study revealed that students were the "medium" strategy users. They used compensations strategies with a relatively high frequency; metacognitive, cognitive, affective, social and memory strategies with a medium frequency. The findings also showed that there was a positive correlation between the frequency of strategy use and the academic achievement.

Through an extensive review of recent research works conducted in Vietnam, it can be concluded that research works in language learning strategy with Vietnamese students were mainly carried out with university students, and most of the participants were English major. Language achievement, age, and gender have been used as the

variables relating to students' use of strategies. No research works had been done to find out the relationship between such variables as 'perceived' class size or science-oriented majors and students' strategy use.

2.4.2 Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Over the past three decades since Rubin (1975) and Stern (1975) set the first steps in conducting research in the field of language learning strategy, various research works have been carried out to identify and explored strategies employed by language learners in learning a language. The purposes of the research works in the area changed along with the time as well. Rubin (1975); Stern (1975); Naiman, Fröhlich, Stern and Todesco's (1978) research works aimed to explore and describe strategies which successful or good language learners employed in learning a target language. The investigated strategies were suggested for unsuccessful or poor language learners to apply in order to make them become successful language learners.

During the 1980s – 2000s, researchers in the field tended to explore factors that are related to the choice of strategy use by language learners. These factors are:

- Gender (e.g. Politzer, 1983; Ehrman and Oxford, 1989; Gu, 2002; Griffiths, 2003; Tercanlioglu, 2004; Intaraprasert, 2004; Khalil, 2005; Sadighi and Zarafshan, 2006; Kyong and Oxford, 2007, McMullen, 2009, and Anugkakul, 2011).
- Language Proficiency (e.g. Oxford and Nyikos, 1989; Wharton 2000; Intaraprasert, 2000; Embi et al, 2001; Shmais, 2003; Peacock and Ho, 2003; Griffiths, 2003; Liu, 2004; Lengkanawati, 2004; Khalil, 2005;

Park, 2005; Prakongchati; 2007; Wu, 2008, Ying, 2009, Sriboonruang, 2009; Fewell, 2010, and Anugkakul, 2011).

- Major field of study (e.g. Gu, 2002; Intaraprasert, 2004; Chang et al, 2007; Kyong and Oxford, 2008, Sriboonruang, 2009, McMullen, 2009 and Fewell, 2010).
- Learners' culture background (Lengkanawati, 2004, and Nam and Leavell, 2006).
- Year of study (e.g. Kyungok, 2003; Sadighi and Zarafshan, 2006, and Rahimi, Riazi and Saif, 2006)
- Learners' belief, motivation, attitudes, and anxiety (e.g. Oxford and Ehrman, 1995; Wenden, 1998; Yang, 1999; Bernat and Gvozdenko, 2005; Park, 2005; Sadighi and Zarafshan, 2006; Kyong and Oxford, 2007, and Cetingöz and Özkal, 2009).
- Types of school or language programs (e.g. Prakongchati, 2007 and Sriboonruang, 2009).

However, very few research works have been conducted to investigate such factors as 'perceived' class size and positive and negative attitudes to the choice of language learning strategies use. Table 2.2 below shows some research works on language learning strategy in terms of participant(s), focus(es) of the study, instrument(s) used in the study, and the investigated variables.

Table 2.2 Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Bremner, S. (1999). Language Learning Strategies and Language Proficiency: Investigating the Relationship in Hong Kong	
Purposes of the Study	- to examine the nature of the link between LLSs and language proficiency
Participant(s)	- University students in Hong Kong
Method(s) of Data Collection	- Questionnaire
Investigated Variable(s)	- Language proficiency
Method(s) of Data Analysis	- ANOVA, and the post-hoc Scheffé tests
Result(s)	- There was a significant association between levels of use of certain strategies and - The strategies that are significant with proficiency were largely active practice strategies, and did not represent specific techniques
Yang, N. D. (1999). The Relationship between EFL Learners' Beliefs and Learning Strategy Use	
Purposes of the Study	- to investigate the relationship between college EFL students' beliefs about language learning and their use of learning strategies.
Participants	University students
Method(s) of Data Collection	Questionnaire
Investigated Variables	Learners' beliefs
Method(s) of Data Analysis	Descriptive statistics, and Pearson correlation
Results	- Language learners' self-efficacy beliefs about learning English were strongly related to their use of all types of learning strategies, especially functional practice strategies. - Learners' beliefs about the value and nature of learning spoken English were closely linked to their use of formal oral practice strategies.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Oxford, R., and Ehrman, M. (1995). Adults' Language Learning Strategies in an Intensive Foreign Language Program in the United States	
Purposes of the Study	- to explore adults LLSs and the relationships between LLS use and the investigated variables
Participants	- Adult learners in the US
Method(s) of Data Collection	- Questionnaire and LASSI
Investigated Variables	1. Language proficiency 2.Teacher perceptions 3. Gender 4. Aptitude 5. Learning style 6. Personality type 7. Motivation 8. Anxiety
Method(s) of Data Analysis	Descriptive Statistics, Spearman correlation, and *t*-test
Results	1. Candidates in FSI's intensive foreign language program were moderate, not high users of LLSs. 2. The correlation between cognitive strategy use and speaking proficiency was low but significant. 3. There was the strong relationship between LLS use persistence, motivation, and the ability to plan. 4. There were significant differences in LLS use between males and females 5. Positive teacher perceptions were correlated with student report of use of cognitive strategies. 6. Self-reported anxiety about speaking the language in class had a positive relationship with cognitive strategy 7. Students who were viewed by teachers as relying more on effort than aptitude appear to have been less frequent users of cognitive strategies than those whose performance was judged as more aptitude-based.
Wharton, G. (2000). Language Learning Strategy Use of Bilingual Foreign Language Learners in Singapore	
Purposes of the Study	- to examine the self reported LLSs use of EFL students in relation to their language proficiency and gender.
Participants	- Singapore university students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Language proficiency and Gender
Method(s) of Data Analysis	- Descriptive statistics, ANOVA, and Pearson Correlation, Chi-square tests
Results	- More learning strategy use among learners with higher proficiency, and more strategies used significantly more often by men

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Intaraprasert, C. (2000). Language learning strategies employed by engineering students learning English at the tertiary level in Thailand	
Purposes of the Study	- to describe types of LLSs which Thai engineering students reported employing; - to investigate patterns of variations in frequency of students' reported strategy use with reference to 5 investigated variables, and; - to examine the relationships between frequency of students' reported strategy use and the five independent variables.
Participants	- Thai EFL students at tertiary level
Method(s) of Data Collection	- Interview and Questionnaire
Investigated Variables	1.Gender 2.Proficiency level 3.'Perceived' class size 4.Type of institution 5.Location of institution
Method(s) of Data Analysis	- Descriptive statistics, post- hoc Scheffé, Chi square tests, and factor analysis
Results	1. Thai engineering students, on the whole, reported medium frequency of strategy use. They reported higher frequency of use of classroom-related strategies than classroom-independent strategies. 2. Frequency of students' overall reported use of strategies varied significantly in terms of 'type of institution', and `language proficiency levels'. 3. Three variables (i.e. gender, `perceived' class size, and location of institution) were not found to have much relationship to students' choices of strategy use.
Shmais, W. A. (2003). Language learning strategy use in Palestine	
Purposes of the Study	- to explore overall strategy use, and; - to investigates the frequency of strategies use among students according to gender and proficiency variables.
Participants	- English major students in Palestine
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender and Proficiency level
Method(s) of Data Analysis	ANOVA and MANOVA
Results	1. English majors used LLS from high > medium frequency, and; 2. Gender and proficiency had no significant differences on the use of strategies.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Gu, Y. (2002). Gender, Academic Major, and Vocabulary Learning Strategies of Chinese EFL Learners	
Purposes of the Study	- to explore the relationship among gender, academic major, learning strategies and learning outcomes.
Participants	- Adult Chinese EFL students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender and Academic major
Method(s) of Data Analysis	- *t*-test and ANOVA
Results	1. Female students significantly outperformed their male counterparts in both a vocabulary size test and a general proficiency test. Females also reported significantly more use of almost all vocabulary learning strategies that were found to be correlated with success in EFL learning. 2. Academic major was found to be a less potent background factor. Science students slightly outperformed arts students in vocabulary size, but arts students significantly outperformed science students on the general proficiency test. 3. Strategy differences were also found between arts and science majors, but differences on most strategy categories were less clear-cut than were those between male and female participants.
Griffiths, C. (2003). Patterns of language learning strategy use	
Purposes of the Study	- to examine the statistically significant relationship between reported frequency of LLS use and course level - to examine variations or patterns in reported frequency LLS use according to course level, nationality, sex or age
Participants	- EFL learners
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1.Language Proficiency 2.Nationality 3.Gender 4.Age
Method(s) of Data Analysis	- Descriptive statistics, Pearson correlation, and univariate regression analysis
Results	1. There was a statistically significant relationship between reported frequency of LLS use and the level at which students were working at the time of the survey; 2. No statistically significant difference was found according to either sex or age. Statistically significant differences were found according to nationality.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Kyungok, L. (2003). The relationship of school year, sex and proficiency on the use of learning strategies in learning English	
Purposes of the Study	- to investigate the use of LLSs of EFL secondary school students with a consideration of variables
Participants	- Secondary school students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender, Grammar proficiency, and School year
Method(s) of Data Analysis	- Descriptive statistics, and GLM
Results	1. The reported frequency of strategy use by the students was moderate overall. 2. Students' sex, school year, and proficiency had a significant relationship on their use of learning strategies.
Peacock, M., and Ho, B. (2003). Student language learning strategies across eight disciplines	
Purposes of the Study	- to compare and contrast strategy use across disciplines and; - examine the relationships among strategy use, L2 proficiency, age, and gender.
Participants	- Hongkong EAP University students
Method(s) of Data Collection	- Questionnaire and Interview
Investigated Variables	1.L2 proficiency 2.Age 3.Gender
Method(s) of Data Analysis	- Descriptive Statistics, and ANOVA
Results	1. A positive association was found between 27 strategies and proficiency. English students used the most strategies, and computing the fewest. 2. Different deficiencies in strategy use were found in different disciplines, for example, the very low use of meta-cognitive strategies by computing students. Differences were also found by age and by gender: older students were strong in affective and social areas, and females in the use of memory and metacognitive strategies

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Liu, D. (2004). EFL Proficiency, Gender and Language Learning Strategy Use among a Group of Chinese Technological Institute English Majors	
Purposes of the Study	- to investigate the frequency of EFL learning strategy use ; - to examine the relationships of two affecting factors: gender and language proficiency
Participants	- technological institute English majors in China
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1.Gender 2.Language proficiency
Method(s) of Data Analysis	Descriptive statistics and independent sample T-test
Results	1. Chinese technological institute English majors were medium strategy users. 2. Learners with better EFL proficiency reported using the overall strategy and each of the six categories of strategy significantly more frequently than learners with lower EFL proficiency did. 3. Significant gender differences among Overall strategy use, Memory strategies and Affective strategies with females surpassing males in each case
Lengkanawati, N. S. (2004). How learners from different culture background learn a foreign language	
Purposes of the Study	- to examine how the learners from different cultural background learn a foreign language using LLSs.
Participants	- University EFL students in Indonesia
Method(s) of Data Collection	1.Interview 2.Questionnaire 3.Observation
Investigated Variables	1.Cultural background 2.Language proficiency
Method(s) of Data Analysis	- Descriptive and inferential statistics
Results	- There were some evidence of the differences in the degree of strategies used by both groups (Indonesian and Australian). The result also showed differences in LLSs due to differences of their learning culture.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Tercanlioglu, L. (2004). Exploring gender effect on adult foreign language learning strategies	
Purposes of the Study	- to discover gender differences in language learning strategies used by foreign language learners.
Participants	- University students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender
Method(s) of Data Analysis	- Descriptive Statistics, Pearson correlation, and ANOVA
Results	1. The students had medium to low level skills in the area of how to learn 2. The study revealed that the use of strategies in foreign language learning is a multidimensional construct 3. There were significant gender differences, favoring males, in students' strategy use
Song, X. (2005). Language Learning Strategy Use and Language Performance on the Michigan Language Assessment Battery	
Purposes of the Study	- to examine the nature of language strategy reported by test takers of the MELAB. - to investigate the relationship between test takers reported strategy use and language test performance in the context of ESL.
Participants	- International ESL students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Language proficiency
Method(s) of Data Analysis	- Descriptive Statistics and Factors analysis.
Results	1. MELAB test talkers' perception of cognitive strategy use primarily fall into six dimensions: repeating/confirming information strategies, writing strategies, practicing strategies, generating strategies, applying rules strategies and linking with prior knowledge strategies. Furthermore, their metacognitive strategies fall into 3 dimensions: evaluating, monitoring and assessing 2. Some strategies had a significant positive or negative effect on language performance.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Zhang, C. (2005). The Study of Language Learning Strategies of Non-English Majors.	
Purposes of the Study	*- to explore the use of LLSs of EFL students in the Chinese context.*
Participants	- Chinese EFL college students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Major field of study and Gender
Method(s) of Data Analysis	- Descriptive statistics, and *t*-tests
Results	1. Students use compensation strategies most frequently, while metacognitive strategies less and social strategies the least. 2. The different strategies are respectively emphasized for the male and female students, students of arts and science and engineering
Nam, K. H., and Leavell, A. G. (2006). Language Learning Strategy use of ESL Students in an Intensive English Learning Context	
Purposes of the Study	- to investigate the LLS use of ESL students with deferring cultural and linguistic backgrounds - to examine the relationship between LLS use and second language proficiency, gender and nationality
Participants	- International ESL students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Language proficiency, Gender, and Nationality
Method(s) of Data Analysis	- Descriptive Statistics, ANOVA, and The post-hoc Scheffe test
Results	1. There was a curvilinear relationship between strategy use and English proficiency, revealing that students in the intermediate level reported more use of learning strategies than beginner and advanced levels. More strategic language learners advance along the proficiency continuum faster than less strategic ones. 2. The study found that the students preferred to use metacognitive strategies most, whereas they showed the least use of affective and memory strategies. 3. Females tended to use affective and social strategies more frequently than males

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Sadighi, F., and Zarafshan, M. (2006). Effects of Attitude and Motivation on the Use of Language Learnign Strategies by Iranian EFL University Students	
Purposes of the Study	- to explore the effects of attitude, motivation, and years of study on the use of LLSs
Participants	- Iranian university freshmen and senior majoring in English
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1.Attitude 2.Motivation 3.Year of study
Method(s) of Data Analysis	- Descriptive statistics, and three-way ANOVA
Results	1. Subjects of the study reported employing metacognitive, social, affective, and compensation strategies more frequently than memory and cognitive strategies; 2. Attitude proved to influence the use of LLSs significantly (learners with positive attitude used LLSs more frequently than those with negative attitude, and; 3. Integratively-motivated students employed more strategies than instrumentally- oriented ones. 4. Seniors showed greater use of LLSs than freshmen.
Yang, M. N. (2007). Language Learning Strategies for Junior College Students in Taiwan: Investigating Ethnicity and Proficiency	
Purposes of the Study	- to investigate the effects of ethnicity and language proficiency on the use of LLSs by junior college students
Participants	- Taiwanese EFL students
Method(s) of Data Collection	Questionnaire
Investigated Variables	1. Ethnicity 2. Language proficiency
Method(s) of Data Analysis	- Descriptive statistics
Results	- Ethnicity did play a significant role in the selection of LLSs. Language proficiency influenced learners' use of LLSs. More proficient students reported using strategies more often than less proficient students. In addition, the most and least favored strategies of various ethnic and proficiency groups were identified

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Chang, C. Y., Chen, S., and Lee, Y. N. (2007). A Study of Language Learning Strategies Used by College EFL Learners in Taiwan	
Purposes of the Study	- to investigate the influence of gender and major on college EFL learning strategy use in Taiwan.
Participants	- Taiwan college EFL students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender and Major
Method(s) of Data Analysis	- Descriptive statistics, ANOVA, and *t*-test
Results	1. There was not a great difference among the frequency of each strategy that Taiwanese college EFL learners report using, all in medium-use level. 2. Statistically significant differences were found in the use of cognitive strategies, metacognitive strategies, social strategies and overall strategies with regard to gender. 3. Statistically significant differences were found in the use of six subcategories of language learning strategies and overall strategies with regard to major
Magogwe, J. M., and Oliver, R. (2007). The relationship between language learning strategies, proficiency, age and self-efficacy beliefs: A study of language learners in Botswana	
Purposes of the Study	- to explore the relationship between preferred language strategies, age, proficiency, and self-efficacy beliefs.
Participants	- Botswana EFL primary, secondary and tertiary students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Age, Level of proficiency, and Self-efficacy belief
Method(s) of Data Analysis	- Descriptive statistics, *t*-test and ANOVA
Results	1. Botswana students do use a number of language learning strategies, but that they showed distinct preferences for particular types of strategies. 2. The findings also revealed a dynamic relationship between use of language learning strategies and proficiency, level of schooling (representing age differences) and self-efficacy beliefs.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Alptekin, C. (2007). Foreign Language Learning Strategy Choice: Naturalistic versus Instructed Language Acquisition	
Purposes of the Study	- to explore the differences in the choice of LLS and in the frequency in two settings: English is being learned in a tutored settings and Turkish in a non-tutored manner.
Participants	- International university students in Turkey
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1. Tutored EFL learners in formal setting and; 2. The non-tutored Turkish in a non-formal
Method(s) of Data Analysis	- Friedman Test, Spearman's correlation, and inter-comparision
Results	1. Compensation as a direct learning strategy seems to be the one most frequently deployed in both tutored and naturalistic learning. 2. A significant difference in tutored English learning students make more use of metacognitive strategies, whereas in non-tutored Turkish acquisition they often use social strategies.
Prakongchati, N. (2007). Factors related to the Use of Language Learning Strategies by Thai Public University Freshmen	
Purposes of the Study	- to explore an overall strategy use of Thai public university freshmen, and; - to examine the relationships and patterns of variations in frequency of students' reported LLS use with reference to 5 investigated variables
Participants	- Thai EFL university freshmen
Method(s) of Data Collection	- Questionnaire and Interview
Investigated Variables	1.Proficiency level 2.Gender 3.Field of study 4.LL experience 5.Types of language program
Method(s) of Data Analysis	- Descriptive statistics, Post hoc Scheffé and Chi square tests, Factor analysis
Results	1. On the whole, students reported medium frequency of strategy use in the four main categories of LLSs; 2. The frequency of students' overall reported use of strategies varied significantly in terms of fields of study, types of academic programs, previous language learning experiences, and language proficiency levels. 3. Gender was found to be slightly related to students' choices of strategy use

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Kyoung, R. L., and Oxford, R. (2008). Understanding EFL Learners' Strategy Use and Strategy Awareness	
Purposes of the Study	- to investigate significant main effects of the variables
Participants	- Mixed levels of EFL learners
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1.Gender 2.Major 3.Education level 4.Attitudes in learning FL 5.Strategy awareness
Method(s) of Data Analysis	- Descriptive statistics, *t*-tests, and grouping
Results	- Except for major and gender, all the other variables had significant influences on strategy use and strategy awareness. - When gender and major are combined with other variables, they interactively affected strategy use and awareness. Therefore, teachers should not emphasize stereotypical strategy use based on gender or majors.
Wu, Y. L. (2008). Language Learning Strategies Used by Students at Different Proficiency Levels	
Purposes of the Study	- to determine significant difference of LLS use between higher proficiency and lower proficiency EFL students; - to determine the strength of the effect of LLS use on English proficiency
Participants	- Taiwanese EFL learners
Method(s) of Data Collection	- General English Proficiency Test and Questionnaire
Investigated Variables	- Language proficiency
Method(s) of Data Analysis	- *t*-test, and MRA
Results	1. Higher proficiency EFL students use learning strategies more often than lower proficiency EFL students; 2. There is no difference in the use of memory strategies between higher and lower proficiency EFL students. 3. Cognitive strategies had the strongest influence to the relationship between language learning strategies and English proficiency, and compensation strategies are most often used by EFL students.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Rahimi, M., Riazi, A., and Saif, S. (2008). An investigation into the factors affecting the use of LLSs by Persian EFL learners	
Purposes of the Study	- to investigate the use of LLSs by Persian EFL learners
Participants	- postsecondary level
Method(s) of Data Collection	- Questionnaire
Investigated Variables	1. Language proficiency 2. Year of study 3. Gender 4. Motivation
Method(s) of Data Analysis	- Descriptive Statistics, MRA, and *t*-test
Results	1. Proficiency level and motivation as major predictors of the use of LLSs among the group of learners. 2. Gender was not found to have any effect, years of language study is negatively predict strategy use. 3. The difference between learners' use of the SILL's six major strategy categories was found to be significant and indicated learners' preference for metacognitive strategies.
Çetingöz, D., and Özkal, N. (2009). Learning strategies used by unsuccessful students according to their attitudes towards social studies courses	
Purposes of the Study	- to analyze the effects of the attitudes of unsuccessful students on the learning strategies they use.
Participants	- Turkey EFL primary students
Method(s) of Data Collection	- Interview
Investigated Variables	- Attitudes
Method(s) of Data Analysis	- Coding, and Grouping
Results	- Unsuccessful students who had positive attitudes towards the Social Studies course used more learning strategies than the unsuccessful students with negative attitudes
McMullen, M. G. (2009). Using Language Learning Strategies to improve the Writing skills of Saudi EFL students: Will it really work?	
Purposes of the Study	- to investigate the use of LLSs by EFL students. - to determine if gender and academic major have any effect on that use and benefits students in the area of strategy instruction.
Participants	- Saudi Arabia EFL university students
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Gender and Academic major
Method(s) of Data Analysis	- ANOVA, and *t*-tests
Results	1. Female students used slightly more LLSs than males; 2. Computer Science students used slightly more LLSs than Management Information Systems students.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Ying, C. L. (2009). Language Learning Strategy Use and English Proficiency of University Freshmen in Taiwan	
Purposes of the Study	- to investigate LLSs used by EFL learners, and; - to look for relationships between LLS and the patterns of strategy use based on language proficiency.
Participants	- Taiwan EFL university freshmen
Method(s) of Data Collection	- Questionnaire
Investigated Variables	- Language proficiency
Method(s) of Data Analysis	- Descriptive statistics
Results	1. Participants reported using compensation strategies most frequently and affective strategies least frequently. 2. Proficiency level has a significant effect on strategy choice and use.
Sriboonruang, D. (2009). English Language Learning Strategies Employed by Thai Pre-University Students.	
Purposes of the Study	- to explore an overall strategy use ; - to examine the relationships as well as patterns of variations in frequency of students' reported LLS use with reference to 4 variables
Participants	- Thai pre-university students
Method(s) of Data Collection	- Interview and Questionnaire
Investigated Variables	1. Gender 2. Type of schools 3. Field of study 4. Extra language class support 5. Language proficiency level
Method(s) of Data Analysis	- Descriptive statistics, ANOVA, post- hoc Scheffé and Chi square tests, Factor analysis
Results	1.On the whole, students reported medium frequency of strategy use in the two main categories of LLSs 2. Frequency of students' overall reported use of strategies varied significantly in terms of gender, fields of study, extra-language class support, and language proficiency levels. 3. Types of schools were found to be slightly related to students' choices of strategy use.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Alireza, S., and Abdullah, M. H. (2010). Language learning strategies and styles among Iranian engineering and political science graduate students studying abroad	
Purposes of the Study	- to find out LLSs employed by Iranian post graduate students studying
Participants	- Iranian EFL postgraduate students in Malaysia
Method(s) of Data Collection	- Questionnaire and Interview
Investigated Variables	1.Learning style 2.Major field of study
Method(s) of Data Analysis	- Descriptive statistics
Results	- Between two groups (Industrial Management Engineering and Political Science) of learners from two different disciplines had different learning styles and consequently used different strategies in their language learning.
Fewell , N. (2010). Language learning strategies and English language proficiency: an investigation of Japanese EFL university students	
Purposes of the Study	- to examine the relationship between English proficiency level and the selection of LLSs by two groups of learners.(English major and Business major)
Participants	- First year EFL Japanese college students
Method(s) of Data Collection	- Questionnaire and Interview
Investigated Variables	1. Proficiency level 2. Major field of study
Method(s) of Data Analysis	- Descriptive statistics
Results	1. There were similarities of patterns in the utilization of language learner strategies shared by high proficiency learners and the noted distinctions shared by low proficiency learners demonstrate the importance of LLSs as an influential variable related in some degree to eventual success or failure in language learning. 2. The result of SILL questionnaire of both groups (English major and Business major) showed that as English proficiency level increased, LLS utilization decreased.

Table 2.2 (contd) Research Works on Language Learning Strategies Conducted in Countries Other than Vietnam

Anugkakul, G. (2011). A Comparative Study in Language Learning Strategies of Chinese and Thai Students: A Case Study of Suan Sunandha Rajabhat University	
Purposes of the Study	- to compare LLS use between Thai and Chinese, the frequency of using LLSs - to find the relationship between the use of LLS and gender, nationality and level of English proficiency
Participants	- 72 Chinese and Thai in Thailand
Method(s) of Data Collection	- SILL Questionnaire
Investigated Variables	1. Gender 2. Nationality 3. Levels of English language Proficiency
Method(s) of Data Analysis	- Descriptive statistics, t-test and Chi-square test
Results	1. Chinese students used overall LLSs significantly more frequently than Thai students 2. Gender and nationality had significant effect on students' use of LLS 3. Level of proficiency had no effect on the strategy use

Notes: **EFL** stands for English as a Foreign Language; **ESL** stands for English as a Second Language; **IELTS** stands for International English Language Testing System; **LLS** stands for Language Learning Strategy; **MELAB** stands for Michigan English Language Assessment Battery; **EST** stand for English for Science and Technology; **LASSI** stands for Learning and Study Strategies Inventory; **FSI** stands for Foreign Service Institute; **MRA** stands for Multiple Regression Analysis; **ANOVA** stands for Analysis of Variance; **GLM** stands for General Linear Model

Recently, researchers in the field have paid more attention to investigate the overall language learning strategy use of EFL students. They also have attempted to examine the relationships between the use of LLSs and factors that affect the choices of language learning strategy use.

Ok (2003) examined the use of language learning strategies of 325 EFL Korean secondary school students with a consideration of variables such as sex, school year, and proficiency in grammar. Strategy use was assessed through a Korean translation of Oxford's (1990) Strategy Inventory for Language Learning, and proficiency level was determined by a cloze test. The major findings were that the reported frequency of strategy use by the students was moderate overall. Girls showed more frequent use of all six strategy categories than boys, and third school year students employed compensation and memory strategies more often, whereas first school year students employed metacognitive, cognitive, affective and social strategies more often. The students who scored highly on the cloze test reported using strategies more often than the low proficiency group. The study also revealed that the students' sex, school year, and proficiency had a significant relationship on their use of learning strategies.

In 2006, Nam and Leavell investigated the language learning strategy use as well as the relationship between LLS use and language proficiency, gender and nationality of 55 ESL students with differing cultural and linguistic backgrounds enrolled in a college Intensive English Program (IEP). The two researchers used Oxford's (1990) Strategy Inventory for Language Learning to collect data for the study. The study found a curvilinear relationship between strategy use and English proficiency, revealing that students in the intermediate level reported more use of learning strategies than beginning and advanced levels. More strategic language learners advanced along the proficiency continuum faster than less strategic ones. Furthermore, the study also found that the students preferred to use metacognitive

strategies most, whereas they showed the least use of affective and memory strategies. Females tended to use affective and social strategies more frequently than males.

Chang et al, (2007) investigated the influence of gender and major on college EFL learners' learning strategy use in Taiwan. A total of 1758 Taiwanese college EFL learners took part in this research study. Two sets of self-reported questionnaires, including Background Characteristics and Oxford's (1989) Strategy Inventory for Language Learning were administered to the participants. The findings of the study showed that there was not a great difference among the frequencies of each strategy that Taiwanese college EFL learners report using, all in medium-use level. Statistically significant differences were found in the use of cognitive strategies, metacognitive strategies, social strategies and overall strategies with regard to gender. The results also found that there were statistically significant differences in the use of six subcategories of language learning strategies and overall strategies with regard to major.

In 2008, Rahimi, Riazi and Saif conducted a quantitative research to investigate the use of language learning strategies and variables affecting learners' choice of strategies (i.e. proficiency level, gender and motivation). Data were gathered from 196 post-secondary level Persian EFL learners who were rated as low-, mid- and high-proficiency. Oxford's (1990) Strategy Inventory for Language Learning, and two questionnaires of attitude and motivation (adapted from Laine, 1988) and learning style (adapted from Solomon and Felder, 2001) were used as the main instruments. The results of the study pointed to proficiency level and motivation as major predictors of the use of language learning strategies among the group of learners. Gender, on the other hand, was not found to have any effect while years of language study appeared to negatively predict strategy use.

McMullen (2009) investigated the use of language learning strategies and determined if gender and academic major had any effect on the use of LLSs by Saudi EFL students inside the Kingdom of Saudi Arabia. Data was collected during the academic year 2007–2008 from three sample universities in Saudi Arabia using Oxford's Strategy Inventory for Language Learning as the instrument. 165 participants in the study were all enrolled in similar Freshman English composition courses and totaled 71 male students and 94 female students. The results of ANOVA (analysis of variance) tests showed that female students used slightly more LLSs than male students, and Computer Science students used slightly more LLSs than Management Information Systems students.

Fewell (2010) conducted a research in Japan to examine the relation between English proficiency level and the selection of LLSs by two groups of learners (English major and Business major). The Japanese translated version of the Oxford's (1990) SILL questionnaire, a computerized English proficiency test (adapted from Ohyagi and Kiggell, 2003), and a brief background questionnaire were administered to 56 Japanese EFL students. The results showed that there were similarities of patterns in the utilization of language learner strategies shared by high proficiency learners and the noted distinctions shared by low proficiency learners demonstrate the importance of LLSs as an influential variable related in some degree to eventual success or failure in language learning. The results of SILL questionnaire of both groups (English major and Business major) showed that as English proficiency level increased, LLS utilization decreased.

In sum, as can be seen in Table 2.2, various research works have been conducted in the field of language learning strategies. Furthermore, through an

extensive review of research works on language learning strategies, it appears that researchers have attempted to find out how different variables (e.g. gender, level of proficiency, age, major field of study, and attitude toward language learning) related to the choice language learning strategy use which the present investigation attempted to study. However, few research works have been conducted to find out the students' use of language learning strategies in relation to such variables as 'perceived' class size and attitude toward learning the target language. Furthermore, no empirical research in the field has been carried to investigate students' use of strategies in relation to such variables as 'level of proficiency', 'perceived' class size, and 'major field of study' with science-oriented university students in Vietnam settings.

In conclusion, Tables 2.1 and 2.2 above have summarized previous research works on language learning strategies from early 1990s to 2010. It appeared that more than half of the research work has been conducted to investigate the overall strategy use, and the strategy use of unsuccessful/poor or successful/good language learners. Few researchers have paid attention to other focal points of study, i.e. investigating the relationships between learners' language learning strategy use and such variables as 'perceived' class size or attitudes toward language learning. Some research works conducted in Vietnam looked for the role of teachers' strategies to help language students to learn languages. An extensive review of available research works, the research work settings, participants of the study, investigated variables, instruments and the findings has been presented.

Regarding the participants of the studies, they could be classified according to their characteristics as follows:

- English native-speakers learning a foreign language (e.g. Naiman et al., 1978).

- English non-native speakers learning English as a second language (e.g. O'Malley et al., 1985, and Ehrman and Oxford, 1989).
- English non-native speakers learning English as a foreign language (e.g. Hoàng, 1999; Embi et al, 2001; Intaraprasert, 2004; Shmais, 2003; Griffiths, 2003; Liu, 2004; Lengkanawati, 2004; Khalil, 2005; Park, 2005; Khalil, 2005; Sadighi and Zarafshan, 2006; Kyong and Oxford, 2007; Wu, 2008; Hằng, 2008; Setingöz and Özkal, 2009; Ying, 2009; Sriboonruang, 2009; McMullen, 2009; Fewell, 2010; and Anugkakul, 2011)

With regard to the ages and institutions, the participants in the previous research works could also be classified as young learners, adult learners, primary and lower high schools, high schools and university students.

Regarding the focal points of study, it is classified as:

- An investigation of the overall strategy use
- An investigation of the strategy use of successful or good language learners
- An investigation of the strategy use of unsuccessful or poor language learners
- An investigation of other related variables with reference to language learning strategies

Regarding methods of data collection, as could be seen from the literature review of studies conducted in the field of language learning strategies above, to collect data, the Oxford's (1990) Strategy Inventory for Language Learning (adopted version or translated version), classroom observation, a self-report survey, Schmidt and Watanabe's (2001) language learning strategies subscales and interviews have been used as main instruments to gather the data.

Concerning techniques to analyse the obtained data, the descriptive statistics (including means, and standard deviations), Pearson's correlations and Canonical correlation analysis, factor analysis, content analysis, Analysis of Variance (ANOVA), and Chi-square tests have been used for the data analysis.

2.5 Summary

Language learning strategies are defined as 'steps', 'actions', 'techniques', and 'behaviors' language learners employ in language learning. Different researchers have defined language learning strategies differently due to their purposes, experiences, and abilities. In the present investigation, language learning strategies were defined as behaviours or thought processes whether observable or unobservable, or both, that science-oriented university students generated and made use of to enhance their specific skills or general knowledge in learning the English language.

Regarding language learning classification, there has been no agreement in classifying language learning strategies among researchers. This is because researchers may have classified from their own experience, from their own studies or from other researchers' studies. However, an extensive review of previous language learning strategy classifications would help the researcher to locate the present investigation in the context of language learning strategy field.

It is clear that research works in the past have been carried out in a variety of purposes, target population, methods of data collection, locations of research conduction and different variables and factors. Chapter 3 will provide and discuss the available research methods in the field of language learning strategies and the theoretical framework for the present investigation.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction and Purpose of the Chapter

This chapter aims to present the background of research methodology in the field of language learning strategies which the researcher applied to the present investigation. The following parts deal with the methods to be used for data generation and data collection for the present investigation. Then, the theoretical framework for the present investigation, sampling and the rationale for the choice of participants are presented. The chapter ends with an explanation of how the collected data were analyzed, interpreted, and reported.

When conducting a piece of research, it is very important to specify the purposes, and types of research as well as to design a systematic plan of gathering the data from whom, how and when to collect the data, and how to analyse and interpret the data obtained. Cohen and Manion (2002), and Robson (2002) suggest that research purposes and questions should be determined by researchers before setting a research design because of both of the research purposes and research questions specify the methodology and design of the research. With regard to the types of research, Robson (1993, p. 42) has proposed three types of research as experimental studies, survey studies and case studies as follows:

- *Experiment.* This type of research answers the questions: How…? and Why…? In experimental research, the control variables and hypothesis testing are always involved.

- *Surveys*. Surveys are appropriate for descriptive studies as this type of research answers the questions 'who, what, where, how many, and how much'. Researchers used questionnaires or interviews as instruments to collect data from several groups of respondents.
- *Case study*. The case studies are used for developing detailed, intensive knowledge about a single case or of a small number of related cases, and this type of research answers the questions 'How…? and Why…?. Therefore, case studies are appropriate for researchers when conducting exploratory work.

Regarding purposes of research, Robson (1993; 2002) points out that the purposes of any research work include explanatory, descriptive, or exploratory. Therefore, defining clearly the purposes of research work may help researchers in selecting the research strategies used. Robson (2002, pp. 59-60) proposes his classification of the purposes of research work in three categories as follows:

1. **Explanatory (Why….?)**
   - To find out what is happening.
   - To seek new insight.
   - To ask questions.
   - To assess phenomena in a new light.
   - Usually, but not necessarily, qualitative.
2. **Exploratory (How…?)**
   - To seek an explanation of a situation or problem, usually in form of causal relationships.
   - May be quantitative and / or qualitative
3. **Descriptive (What…?)**
   - To portray an accurate profile of persons, events or situations
   - Requires extensive knowledge of the situation, etc. to be researched or described, so that researchers know appropriate aspects on which to gather information.
   - May be qualitative and / or quantitative.

The purposes of the present study were to investigate: 1) the overall use of language learning strategies reported by Vietnamese science-oriented university students when learning English as a foreign language; and 2) how the independent variables including gender, major fields of study, 'perceived' class size, attitudes toward language learning, and levels of language proficiency relate to the use of

language learning strategies, if any. From the purposes above, the present study is classified as exploratory and descriptive, and the survey is the main method, and both qualitative and quantitative approaches are applied.

3.2 Methods in Language Learning Strategy Research

According to Johnson (1977, p. 9) “Research methods are procedures a researcher follows in an attempt to achieve the goal of a study”. Robson (1993, p. 38) affirms that “the general principle is that the research strategy or strategies, and the methods or techniques employed must be appropriate for the questions you want to answer”. There are many ways which researcher can used to gather data on what strategies learners reported using and also on how learning strategies are employed by language learners (Robson, 1993). Each research method has both strong and weak points and no method is considered to be perfect. Regarding the field of language learning strategies, the main research methods include: 1) Interview; 2) Questionnaire; 3) Classroom observation; 4) Think-aloud; and 5) Diaries.

In this section, the main research methods used to gather data on language learning strategies will be introduced. This is followed by the framework of methods for data collection for the present investigation. The main research methods for language learning strategies include: 1) Interview; 2) Questionnaire; 3) Classroom observation; 4) Think-aloud; and 5) Diary studies.

3.2.1. Written Questionnaire

"Questionnaires are any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers." (Brown, 2001b, p. 6). Regarding

purposes of using questionnaire, Mackey and Gass (2005, p. 93) state that "questionnaires allow researchers to gather information that learners are able to report about themselves, such as their beliefs and motivations about learning or their reactions to learning and classroom instruction and activities-information that is typically not available from production data alone". There are two types of questionnaire items identified: closed and open ended. A closed-item question helps the researcher to determine the possible answers and to gather greater information, whereas an open-ended question allows respondents to answer in any manner they see fit and to express their own thoughts and ideas in their own manner.

Questionnaires can yield three types of data about respondents: factual questions, behavioral questions, and attitudinal questions like opinions, beliefs, interest, and values. They are efficient in terms of researcher time, researcher effort and financial resources (Dörnyei, 2003, pp. 8-9), and "best suit to investigate language attitudes, L2 learning strategy, L2 learner's belief" (Dörnyei, 2003, pp. 143-149).

One more advantage of using questionnaires is that, it is considered to be more economical and practical than individual interviews; questionnaires can elicit longitudinal information from learners in a short period of time. Furthermore, questionnaires can be administered in many forms, including via e-mail, by phone, through mail-in forms, as well.

However, according to Mackey and Gass (2005, p. 96), to maximize the effectiveness of the questionnaire, researchers should try to achieve the following:

- Simple, uncluttered formats;
- Unambiguous, answerable questions;

- Review by several researchers;
- Piloting among a representative sample of the research population.

Furthermore, the researcher keeps in mind some disadvantages of using questionnaire as what Dörnyei (2003, pp. 10-14) has pointed out, for example:

- Simplicity and superficiality of answers;
- Unreliable and unmotivated respondents;
- Respondent literacy problems;
- Little or no opportunity to correct the respondents' mistakes;
- Social desirability (or prestige) bias;
- Self-deception;
- Acquiescence bias;
- Halo effect; and
- Fatigue effects.

3.2.2 Interview

Interview is defined as "a directed conversation between an investigator and an individual or group of individual in order to gather information" (Nunan 1989, p. 60). In addition, Punch (2005, p. 168) also affirms "it is a very good way of accessing people's perceptions, meaning, definitions of situations, and constructions of reality. It is also one of the most powerful ways we have of understanding others". An interview is selected when interpersonal contact is important and when opportunities for follow up of interesting comments are desired. In addition, in a student interview it calls for retrospective accounts for strategies which students have employed (Ellis, 1994).

The use of interviews as the data collection method begins with the assumption that the participants' perspectives are meaningful, knowable, and able to

be made explicit, and that their perspectives affect the success of the task (Chamot, 2001). Consequently, Nunan (1992) states that interview can be placed on a continuum ranging from unstructured interviews through semi-structured interview to structured interview.

In an unstructured interview, researchers put a little control or non-control to the interviewee over the interview, and the questions asked will be more likely to be open-ended, with the interviewee providing responses in their own words. The main difficulty with unstructured interviews is that it can be difficult and time-consuming; moreover, the data collected from different respondents is different, and therefore not always comparable and unpredictable (Stimson, Donoghoe, Fitch, Rhodes, Ball, and Weiler, 2003).

On the contrary, structured interviews are used when an interviewer wants more control over the topics and the format of an interview. The interview agenda is planned by the interviewers who ask specific questions in a particular order. Structured interviews work well when the assessment goals are clear (Stimson et al., 2003).

In a semi-structured interview, the interviewer has a general idea of what should come out from the interview. It also gives the interviewee a degree of power and control over the course of the interview. Interviewer will have a written set of questions to ensure that the interview covers each of these questions. However, the interviewer does not enter the interview with a lot of planned questions. Semi-structured interviews are often considered too intensive and demanding to carry out with large numbers of respondents. However, according to Nunan (1992, p. 149),

semi-structured interview seems to be “popularly used in qualitative design since they are flexible”.

Of the three types of interviews, semi-structured seems to be broadly used among the researchers because of its flexibility. “The semi-structured interview has found favour with many researchers, particularly those working within an interpretative research tradition” (Nunan, 1992, p. 149).

In conclusion, as stated in Intaraprasert (2000, p. 55), researchers should consider “the nature of the research and the degree of control that they wish to exert before they choose what type of interview will be used as a data collection method”.

3.2.3 Classroom Observation

According to Lofland and Lofland (1994), and Atkinson and Hammersly (2003), classroom observation is an important tool for researchers in the field of social sciences. Ellis (1994, pp. 533-534) also points out that classroom observation techniques are “methods by observing to gather firsthand data on programs, processes, or behaviors being studied which attempt to identify different language learning strategies by observing learners performing as a variety of tasks, normally in the classroom settings”. He affirms that classroom observation method “works well with young language learners whose behavior serves as a good indicator of their mental activity” (Ellis 1994, p. 534).

Robson (2002, pp. 313-319) mentions that classroom observations are “characterized relating to the degree of participation and the amount of structure imposed by the researchers”. Based on the degree of observers’ participation, observations can be classified into four main types: complete observer, observer as participant, participant as observer, and complete participant. The role of the

researcher varies from not actively involving in what is happening, presenting what is being observed, being part of the group being observed to being full and complete member of the events and interactions being studied. For the amount of researcher's control, observation can be divided into structured observation and unstructured observation. In the structured observation, the observer has a schedule of some sort which determines the kinds of events and interactions to be recorded, while in the unstructured observation, the observer has a predetermined plan of what will be observed or recorded.

In the field of language learning strategy studies, some researchers have found that classroom observation can identify learning strategies (e.g. Chesterfield and Chesterfield, 1985; Rubin, 1981; and Chamot, 2001), while some other researchers have pointed out that this method cannot provide much information that language learning strategies that language learners employ (Naiman et al., 1978). In addition, Rubin (1975); Oxford (1990); and Chamot (2001) support Naiman et al., (1978) that this method is not productive to provide insufficient information about students' use of language learning strategies, especially the information on mental operations. However, according to Oxford and Burry-Stock (1995), classroom observation is easy to use and can be conducted both formally and informally. Moreover, "this method can help the researcher get the facts during the classroom observation" (Robson, 2002, p. 311).

3.2.4 Think-aloud Protocols

Matsumoto (1993, p. 34) defines "think-aloud protocol" as "a verbal-report method of producing concurrent verbalization, think-aloud procedures ask informants to tell researchers what they are thinking and doing, i.e. everything that comes to

mind while performing a task". This method has both merits and shortcomings (Faerch and Kasper, 1987; and Mann, 1982) as it involves a one-on-one interview (Chamot, 2001). The indisputable merit of introspective data is that there is no other way to access learners' thoughts and perceptions, leaving researchers to only speculate about learners' mental activities. However, introspective data may be unreliable, as learners vary in their ability both to introspect and to report their thoughts. They also vary in their willingness to do so (Paribakht and Wesche, 1999; and Bot, 1997). Because of the above shortcomings, think aloud as a research protocol has been widely criticized (Roskams, 1998).

However, according to Oxford and Burry-Stock (1989), think-aloud protocols method provides more detailed information since the students describe strategies while doing a language task. Therefore, this method of collecting data has been employed to "investigate learners' ongoing cognitive processes and strategies in four major second language areas including translation, reading, writing, and testing" (Matsumoto, 1993, p. 36).

3.2.5 Diary Studies

A dairy is considered to be "a kind of self- administered questionnaire" (Robson 2002, p. 258). The term "diary" is also defined by Richards and Lockhart (1992, p. 107) as "a regular kept journal or written record of a learner's language development, often kept as part of longitudinal study of language learning". Researchers in the field of LLSs may use diary as an "important introspective tool" (Nunan, 1992, p. 118) to gather enough information for the studies because "they point out rich insights into some of the psychological, social, cultural factors implicated in language development" (Nunan, 1992, p. 123). Furthermore, diaries can

be used to supplement other data collection techniques as self-report checklists or observations. According to Robson (2002), combining a diary data collection method with other research methods helps people to notice the specific happening that they consider to be important.

However, the validity of this research tool should be considered as diary studies are usually conducted on a small number of research subjects. Therefore, its conclusion cannot be validated enough to be applied to the whole population. It is concerned with a doubt such as "how conclusions based on data from a single subject can possibly be extrapolated to other language learners". (Nunan, 1992, p. 123)

In sum, each researcher has a freedom to choose the method that is suitable for their research purposes. As stated in Creswell (2003, p. 12), "individual researchers have a freedom of choice. They are "free" to choose the methods, techniques, and procedures of research that best their needs and purposes".

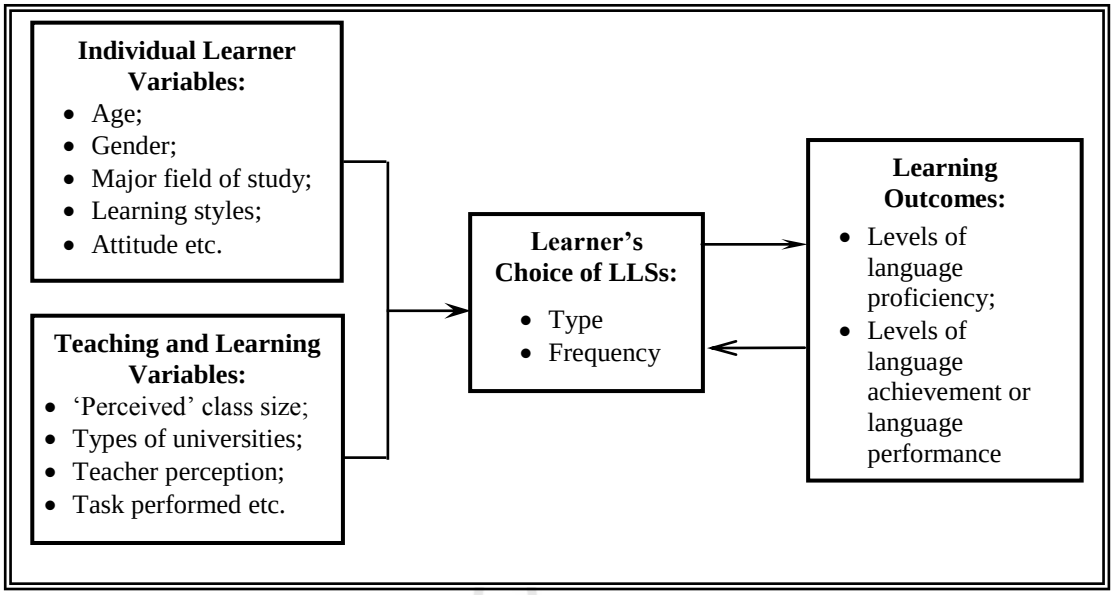
Since the present investigation has aimed to explore types of language learning strategies to be reported by science-oriented university students in the north of Vietnam, and the study is both qualitative and quantitative in nature; therefore, classroom observation, diary studies and think-aloud protocols are not suitable for the present investigation since these methods do not support the purposes of the study as stated in the previous sections. Consequently, the semi-structured interviews and the written language learning strategy questionnaires were used as the instruments for data collection. This is because the semi-structured interview is flexible and a good way of accessing learners' perceptions. Furthermore, this method enables researchers "to have access to the opinions, viewpoints, attitudes, and experiences of individuals" (Madriz, 2000, p. 840). The questionnaire has been

found to be a useful instrument to collect the data in the survey research and the data from the closed questions are easier to analyze (Nunan, 1992), it can easily be administered to a large group of students, scoring and data compilation are relatively simple, and more importantly, precise quantitative measures can be derived (Bialystok, 1981).

3.3 Theoretical Framework and Rationale for Selecting and Rejecting Variables for the Present Investigation

Through the review of related research works and other materials on language learning strategies in Chapter 2, the researcher gets general background and has evidence to locate the present investigation in the context of past research and the opinion of other researchers as to develop a specific theoretical framework and rationale for selecting and rejecting variables for the present investigation.

The main point of the present study focuses on how five independent variables which are: students' gender, students' major fields of study, students' 'perceived' class size, students' attitudes toward language learning, and students' levels of language proficiency relate to their uses of language learning strategies. Before proposing the theoretical framework of the present study, the theoretical framework based on the empirical past research studies on language learning strategies is presented in order to give a clear picture about what variables affect language learning strategies. Figure 3.1 below shows the theoretical framework based on the empirical research.

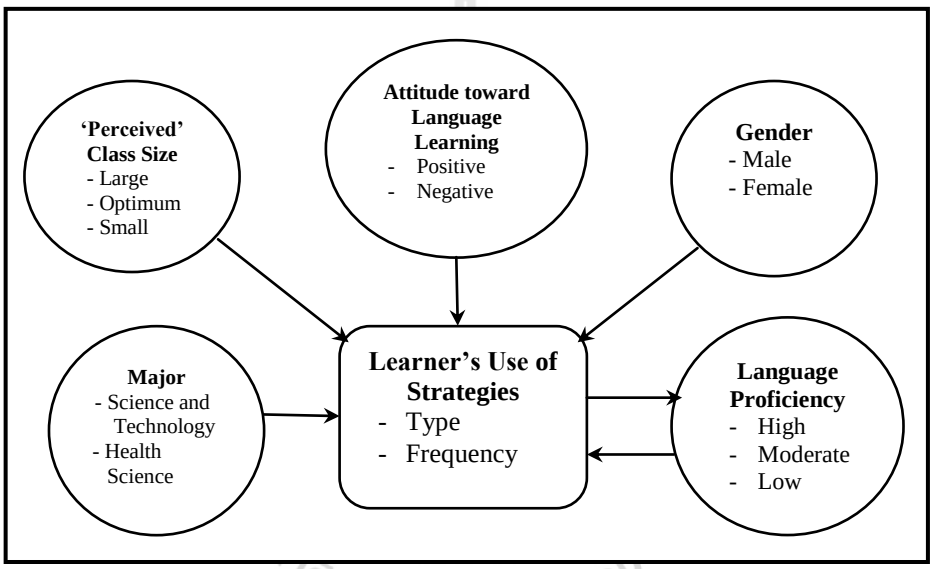


(Source: Adapted from Ellis 1994, p. 530)

Figure 3.1 Theoretical Framework based on the empirical research

Figure 3.1 reveals that types of language learning strategies and learners' frequency of language learning strategy use have been hypothesised to be influenced by two main sets of variables: 1) learner variables (e.g. anxiety, attitudes, age, gender, field of study, motivation, and learning style, and 2) teaching and learning condition variables (e.g. types of universities, teacher perceptions and teaching methodology, length of course study) in a single-directional relationship. Regarding learning outcomes (i.e. levels of language proficiency, language ability and levels of language achievement), there is a two-directional relationship between learners' language strategy use and the learning outcomes. It appears to indicate that more active use of strategies may indeed be responsible for raising language proficiency levels. In other words, language learning strategy use can be resulted from learners' language proficiency and vice versa.

The present investigation aims at examining variation in the use of overall strategy use and by looking individually at patterns of variation by gender, the major field of study, 'perceived' class size, attitudes toward language learning, and language proficiency levels of science-oriented Vietnamese university students. These variables are assumed to be related to students' choice of strategies used. Figure 3.2 below shows the theoretical framework of the present investigation.



(Source: Adapted from Intaraprasert 2000, p. 59)

Figure 3.2 Theoretical Framework of the Present Study

The theoretical framework proposed above shows that five variables (gender, 'perceived' class size, major field of study, language proficiency, and attitude toward language learning) are investigated in relation to learner's choice of language learning strategies in this study. The five variables of the present investigation are probably linked with one another as source of language learning and teaching to take place. In the present investigation, some variables (e.g. gender, language proficiency) have

been investigated by many other researchers. Variables as ‘perceived’ class size, and attitude toward language learning have hardly been found to be investigated to present. Moreover, no empirical research has been conducted with science-oriented university students in the context of Vietnam.

Since the present investigation has been designed to explore and describe language learning strategies used by science-oriented university students in Vietnam, the five variables mentioned above are assumed to relate to students’ choice of strategy. What follows is the discussion of the basic assumptions about the relationship between learners’ strategy use and the five variables, based on the theoretical framework, related literature, other researchers’ point of views, and the researcher’s justification of the selected variables in the present investigation.

3.3.1 Students’ Use of Language Learning Strategies and Their Gender

Up to now, there have come to the mixed conclusion among researchers when examining the relationship between gender and strategy use. Some researchers revealed that male and female students reported differences in choosing learning strategy use e.g. Ehrman and Oxford (1989); Oxford and Ehrman (1995); Ghadessy (1998); Tercanlioglu (2004); Ok (2005); Su (2005); Xuan (2005); and Chang *et al* (2007), while Ehrman and Oxford (1990); Wharton (2000); Intaraprasert (2004); Kyoung and Oxford (2008); and McMullen (2009) failed to provide empirical evidence regarding the relationship of this variable with students’ strategy use.

To examine the relationship between language learners’ use of language learning strategy and gender, Ehrman and Oxford (1989) conducted the research with students, teachers, language trainers, and professional language trainers at Foreign Service Institute and Center for Applied Linguistics. The findings of the study

indicated that strategy reported by female language learners was significantly more frequently than male in four categories (general study strategies, authentic language use, strategies for searching for and communicating meaning, and self-management strategies. The findings also revealed that male used more learning strategies to improve their English skills than female did.

Ghadessy (1998) examined the relationship between genders, English proficiency, and major field of study, and the use of language learning strategies of three groups of 602 first-year students of Science, Humanities, and Business Communication at Baptist University, Hong Kong. The result of the study indicated that students' gender and proficiency level in English affected their learning strategy use.

Intaraprasert (2004) conducted a descriptive-interpretive piece of research to investigate an overall strategy use of 488 Thai EST students learning English for Science and Technology (EST) as well as to examine the relationships between language learning strategy use and gender. Results of the research showed that these language learners, on the whole, reported medium frequency of use of out-of-class language learning strategies. Besides, a minor significant difference in strategy use between male and female students was found.

Chang et al., (2007) investigated the influence of gender on college EFL learning strategy use in Taiwan. A total of 1758 Taiwanese college EFL learners took part in this research study. The finding of the study indicated statistically significant differences found in the use of cognitive strategies, metacognitive strategies, social strategies and overall strategies with regard to gender.

Based on these previous research works, it might be concluded that male and female may use different strategies in learning language and the frequency may be varied. This study aims to examine whether or not Vietnamese university students' gender are related to their learning strategy use.

3.3.2 Students' Use of Language Learning Strategies and their Major Fields of Study

Research works on major field of study as a factor related to language learning strategy use have not been paid much attention. Only some available research works on language learning strategy use was found as in Peacock and Ho (2003); Intaraprasert (2003; 2004); Zhang (2005); and Alireza and Abdullah (2010).

Peacock and Ho (2003) explored the use of 50 common second language learning strategies by 1,006 English for Academic Purposes (EAP) students across eight disciplines – building, business, computing, engineering, English, maths, primary education, and science in a university in Hong Kong. A positive association was found between 27 strategies and proficiency. English students used the most strategies, and computing the fewest. Different deficiencies in strategy use were found in different disciplines, for example, the very low use of metacognitive strategies by computing students.

Zhang (2005) explored EFL college students' language learning strategies in the Chinese context. The subjects of the study were 106 students who were enrolled in the second year of their 4-year undergraduate degree program, majoring in two programs offered by Hohai University at its Changzhou campus, Bachelor of Arts and Bachelor of Science and Engineering. The findings of the study indicated that the

different strategies were respectively emphasized for students of arts and science and engineering.

Recently, Alireza and Abdullah (2010) carried out a research to explore the use of language learning strategies among Iranian Engineering and Political Science graduate students. Thirty Iranian graduate students at University Putra Malaysia took part in the study. The findings showed that students from different majors used different language learning strategies.

In the present investigation, the researcher examines whether or not Vietnamese university students majoring in Science and Technology and Health Science have a relationship with their use of language learning strategies in learning English as a foreign language.

3.3.3 Students' Use of Language Learning Strategies and their 'Perceived' Class size

Through an extensive review of research works on language learning strategy, students' perception of their class size is little focused by researchers as a variable which is related to students' language learning strategy use. Some available research works, such as Coleman (1991); Sarwar (1992); Mebo (1995); and Embi (1996), revealed that students who study in a large class tend to employ a greater range of strategies in their language learning and that they have to choose specific strategies in their learning process. Moreover, Intaraprasert (2000) found that students who perceived their class size as large tended to report using language learning strategies significantly more frequently than those perceiving their class size as either optimum or small. However, the result showed no strong relationship between this variable and the use of language learning strategies.

The present investigation aims to investigate how students' perception of their English class size which is classified as large, optimum or small affect their choice of strategy use in learning the English language.

3.3.4 Students' Use of Language Learning Strategies and their Attitude toward Language Learning.

Attitudes toward language learning seem to have been playing an important role in learning a foreign language. Gardner (1985, p. 10) defines attitudes are a component of motivation which "refers to the combination of effort plus desire to achieve the goal of learning plus favorable attitudes towards learning the language". Holmes (1992, p. 346) states that "people develop attitudes towards languages which reflect their views about those who speak the language, and the contexts and functions with which they are associated". In addition, Brown (2000) affirms that attitudes are cognitive and affective; that is, they are related to thoughts, feelings and emotions. Attitude governs how one approaches learning which in the case of language requires exposure to a different cultural and also to the difficult task of mastering a second language. Moreover, attitudes begin developing early and are influenced by many things, including parents, peers, and interactions with people who have social and cultural differences. Therefore, attitude "form a part of one's perception of self, of others, and the culture in which one is living" (Brown, 2000, p. 180).

Regarding positive and negative attitudes, Elyidirim and Ashton (2006) point out negative attitudes towards the foreign language and group, which often come from stereotypes and superficial contact with the target culture, can impede the learning of that target while positive attitudes increase language learning process. When students with positive attitudes experience success, the attitudes are reinforced, whereas

students with negative attitudes may fail to progress and become even more negative in their language learning attitudes.

Sadighi and Zarafshan (2006) conducted a research with 126 undergraduate students majoring in English at Shiraz Islamic Azad University in Iran to find out the effects of attitude and motivation on the use of language learning. Findings from the study showed that there were significant differences between students' positive attitude and the choice of LLSs. Students with positive attitude used LLSs more frequently than those holding negative attitude.

The present study's purpose is to explore Vietnamese science-oriented university students' attitudes toward English language learning and to investigate how their attitudes affect their choices of language learning strategies.

3.3.5 Students' Use of Language Learning Strategies and their Levels of Language Proficiency

Previous works on language learning strategies have examined many factors that affected the choice of learning strategies. Regarding students levels of language proficiency, results of some recently research works showed that students who have higher of level of language proficiency tend to employ greater range of language learning strategy than those of lower level of proficiency, e.g. Green and Oxford (1995); Ghadessy (1998); Intaraprasert (2004); Su (2005); Khalil (2005); Teng (2006); Chang et al (2007); Wu (2008); and Anugkakul (2011). Instead of classifying as high and low proficiency levels, some researchers used the terms 'successful' and 'unsuccessful' language learners or 'good' or 'poor' language learners.

Khalil (2005) conducted a research to investigate language learning strategy use and to explore the effect of proficiency level on frequency of strategy used by 378

Palestinian EFL learners. The results indicated that learner proficiency level had an effect on frequency of overall strategy use; furthermore, proficiency level had an effect on memory, compensatory, cognitive, metacognitive, and social strategies. For the individual strategies, the researcher reported that proficiency level had an effect on the individual strategies.

Teng (2006) conducted a research to examine the learning strategies used by technology college students in Taiwan, and to find the differences in learning strategies among EST students with regard to their English proficiency. Participants of the study were 156 freshmen students at National Yunlin University of Science and Technology. Results of the study indicated that among the six strategy groups, compensation strategies were most often used by subjects, and that social strategies were least often used. Besides, greater uses of learning strategies were found among more proficient learners, respectively.

Wu (2008) aimed to probe the significant differences between strategies used by higher and lower proficiency learners as well as the effects of LLSs on learner's proficiency. Forty nine higher proficiency and eighty eight freshmen EFL Taiwanese students took part in the research. The findings showed that both higher and lower proficiency EFL students used compensation strategies more often than other strategies. And, higher proficiency EFL students used language learning strategies more often than lower proficiency EFL students. In addition, the use of cognitive strategies had the strongest relation to English proficiency as well as cognitive strategy use had greater effect on the listening and reading proficiency of Taiwanese learners.

In the present investigation, the researcher examines the relationship between language learning strategy use and Vietnamese university students' levels of proficiency which are classified into high, moderate and low based on students' score gained from the researcher-constructed Reading Proficiency Test for Science-oriented Students (RPT-SoS).

3.4 Research Questions

Based on the research purposes and the proposed relationship between five mentioned independent variables and the language learning strategies employed by Vietnamese science-oriented university students, the present investigation is designed to provide answers to the following specific questions:

1. What are the types of language learning strategies reported to be employed by Vietnamese science-oriented university students learning English as a foreign language?
2. What is the frequency with which these language learning strategies are reported to be used by these students?
3. Do students' choices of language learning strategies vary significantly according to their gender? If they do, what are the main patterns of variation?
4. Do students' choices of language learning strategies vary significantly according to the major field of study? If they do, what are the main patterns of variation?
5. Do students' choices of language learning strategies vary significantly according to their perception of the size of class they find themselves in? If they do, what are the main patterns of variation?

6. Do students' choices of language learning strategies vary significantly according to their attitudes toward language learning? If they do, what are the main patterns of variation?
7. Do students' choices of language learning strategies vary significantly according to their levels of proficiency? If they do, what are the main patterns of variation?

3.5 Sampling and Rationales for Choice of Participants

'Sample', according to Dörnyei (2003, pp. 70-71) is "the small group of people or the subset of the population which is representative of the whole population". Robson (2002, p. 260) affirms that the sample is a "part of a population, it is selected according to the needs and purposes of the study". As a result, selecting sample for the research is very important since it will be generalized to the population of the study. Dörnyei (2003, p. 71) states that "a good sample is very similar to the target population in its most important general characteristics such as age, gender, ethnicity, educational background, academic capability, social class, socioeconomic status, etc.".

Regarding the sample size, Locke, Silverman, and Spirduso (1998) suggest that the sample should be adequate, neither too big nor too small. In addition, Cohen and Manion (1985, p. 10) affirm that "the correct sample size depends on the purpose of the study and the nature of the population under scrutiny". Moreover, Bell (1999, p. 126) notes that "the numbers of subjects in the study will necessarily depend on the time researchers have for the study".

In the present investigation, the samples must be good representative of science-oriented university students learning English as a foreign language in the north of Vietnam, this is consistent with Miles and Huberman (1994, p. 27) as they point out “you cannot study everyone everywhere doing everything”. Therefore, the samples for the present investigation should not be too big to be manageable, but should be adequate in numbers to be the good representative of science-oriented university students in the north east of Vietnam. The characteristics of the research population are discussed in the following section.

3.6 Characteristics of the Research Population and Science-oriented Universities

This section focuses on characteristics of population in the present investigation. Tables 3.1-3.4 below are the breakdown of the number of participating students related to each variable in the data collection so that it provides a context for the results obtained through data analysis for the present investigation. This breakdown has been cross-tabulated, and the Chi-square tests were employed to examine the distribution of the research subjects among the investigated variables.

Table 3.1 below shows the number of students in each group of the five variables when related to major fields of study. Of the five variables presented, the Chi-square results show that the distribution of the participants varied significantly within ‘gender’, and ‘perceived class size’. It can be seen that there are more Science and Technology students from both gender than Health Science students. There are more male students than female students study in Science and Technology; whereas, more female students than male students study in Health Science.

In respect of students' perception of their class sizes, more science and technology students perceived their class size as 'large' or 'optimum' than those study in health science, especially, no student studies in health science perceived their class as a large class.

Regarding number of students' attitude toward language learning, and students' language proficiency levels, it appears that the patterns of attitude and proficiency levels are consistent irrespective of major fields of study.

Table 3.1 Distribution of 'Major Fields of Study' by 'Gender' 'Perceived Class Size', 'Attitude toward Language Learning', and 'Language Proficiency Levels'

Major	Gender		'Perceived' Class Size			Attitude toward LL		Language Proficiency levels		
	Male	Female	Lrg	Opt	Sml	Pos.	Neg.	Hi.	Mod.	Lo.
Sci. & Tech (n=409)	311	98	112	247	50	336	73	38	176	195
Health Sci (n=206)	74	132	0	176	30	165	41	14	75	117
Total (n=615)	385	230	112	423	80	501	114	52	251	312
χ^2 value	χ^2 = 94.174 p <.01		χ^2 = 69.481 p <.01			N.S			N.S	

The Chi-square results in Table 3.2 below show that the distribution of the male and female students varied significantly within 'perceived class size', 'attitude toward language learning' and 'language proficiency levels'. That is to say, there are more male and female students perceived their class as 'optimum' than both 'large' and 'small'. In addition, there are more male and female students having positive attitudes than negative attitude, and also a higher proportion of male and female

students are of 'moderate and 'low' language proficiency levels than of the 'high' level.

Table 3.2 Number of Students by 'Gender' in Terms of 'Perceived Class Size', 'Attitude toward Language Learning', and 'Language Proficiency Levels'

Gender	'Perceived' Class Size			Attitude toward Language Learning		Language Proficiency levels		
	Lrg	Opt	Sml	Pos.	Neg.	Hi.	Mod.	Lo.
Male (n=385)	112	247	50	336	73	38	176	195
Female (n=230)	0	176	30	165	41	14	75	117
Total (n=615)	112	423	80	501	114	52	251	312
χ^2 value	$\chi^2 = 9.531$ p <.01			$\chi^2 = 9.492$ p <.01		$\chi^2 = 6.955$ p <.05		

The results of the Chi-square tests presented in Table 3.3 below reveal that the distribution of students with positive and negative attitude toward language learning is not significantly different in respect of their perception of their class sizes and the language proficiency levels. That is to say, students with different perception of their class sizes and the language proficiency levels have the same attitude toward language learning.

Table 3.3 Number of Students by 'Attitude toward Language Learning' in Terms of 'Perceived Class Size', and 'Language Proficiency Levels'

Attitude toward Language Learning	Perceived Class Size			Language Proficiency levels		
	Large	Optimum	Small	High	Moderate	Low
Positive (n=501)	112	247	50	38	176	195
Negative (n=114)	0	176	30	14	75	117
Total (n=615)	112	423	80	52	251	312
χ^2 value		N.S			N.S	

The figures as the results of the Chi-square tests shown in Table 3.4 below reveal that the distribution of students with different perceptions of their class sizes is not significantly different in respect of their language proficiency levels.

Table 3.4 Number of Students by 'Language Proficiency Levels' in Terms of 'Perceived Class Size'

Language Proficiency levels	Perceived Class Size		
	Large	Optimum	Small
High (n=52)	13	32	7
Moderate (n=251)	51	170	30
Low (n=312)	48	221	43
Total (n=615)	112	423	80
χ^2 value		N.S	

Table 3.5 below summarises the characteristics of the research participants when the distribution of the number of students among the variables is examined. The information demonstrates whether or not the distribution of the research participants varies significantly when related to different variables. This participant characterization may be useful for the researcher to interpret some cases of the research findings in Chapter 7 later.

Table 3.5 Summary of the Variation of the Research Participants

Variables	Major Fields of Study	'Perceived' Class Size	Attitude toward Language Learning	Language Proficiency Levels
Gender	YES	NO	YES	YES
Major Fields of Study		YES	NO	NO
'Perceived' Class Size			NO	NO
Attitude toward Language Learning				NO

Note: 'YES' means the population varies significantly; and 'NO' means the population does not.

In sum, the characteristics of research subjects can be summarized as follows:

- The total number of students reveals that there are more 'male' students than their 'female' counterparts.
- More 'Science and Technology' students than 'Health Science' students
- The majority of students had 'positive' attitude toward their language learning
- The number of male students who study in the field of Science and Technology is a lot more than those studying in Health Science field.
- More students with 'moderate' level of language proficiency than those with 'high' and 'low' level of language proficiency;
- The majority of students perceived their class size as 'optimum'

In terms of the characteristics of the research population demonstrated in Tables 3.1–3.4, they are generally satisfactory although the distribution is not perfectly well-balanced or proportioned as planned since the researcher could not manage some factors or obligations. This can be summarized briefly as follows:

3.6.1 The Selection of Students

It would be ideal if the proportion of male and female is balanced. However, the proportion of male and female students in the present investigation is not balanced as the number of male students is much larger than female students in the field of science and technology; whereas, in the field of health science, the number of male students is slightly smaller than their female counterparts. This due to the fact that science and technology is male-oriented, while health science is female-oriented. Despite these factors, these female students in science and technology and male students in health science had provided the researcher with very useful information for the investigation.

3.6.2 Major Field of Study

'Field of study' in this study is classified into two groups: Science and Technology, and Health Science. Science and Technology major refers to students who undertake their Bachelor Degree in engineering (e.g. Mechanical Engineering, Electrical Engineering, Electronic Engineering, Computer Engineering, Civil Engineering, Agriculture and Forestry Engineering, and Environmental Engineering). Health Science major means students who study to work in the field of health care (e.g. Traumatology - Orthopedics, Dentistry, Odonto – Stomatology, Pharmacy, Nursing, Gynecology, Midwifery, Public Health, Epidemiology, Nutriology, Immunology, Health Education, Emergency Resuscitation, Morphology, and Urology). The researcher intended to sample each major field of study according to the proportion. However, the proportion of science and technology students was slightly bigger than students in health science. This is because health science

universities admission size is limited; therefore, health science freshman is smaller when compared with their counterparts in science and technology universities.

3.6.3 Levels of Language Proficiency

'Levels of language proficiency' in this study refers to students' language proficiency levels which were determined by the students' test scores obtained through the researcher-constructed reading proficiency test. As can be seen in Table 3.4, proportion of levels of language proficiency is not perfectly well-balanced, since the number of 'low' language proficiency level is the largest proportion. The smallest proportion of level of language proficiency is the 'high' level.

Regarding characteristics of science-oriented universities, according to MOET (2010), in the north of Vietnam, there are 71 government universities in the system of Ministry of Education and Training in which 23 universities are Science and Technology, 7 universities are Health Science. The rests are universities of Languages, Laws, Social and Humanities, Public Administration, Teachers' Training, and Economical Management. Almost all of these universities concentrate in three regions, the central, northern midland and the north-east. The representatives for the central region will be 1) Hanoi University of Science and Technology, 2) Hanoi Medical University, 3) Thainguyen University of Technology, and 4) Thainguyen Medical and Pharmacy University will be the representatives for the northern midland region, and 5) Haiphong University, and 6) Haiphong Medical University for the north-east region.

The reason for choosing these universities as samples for the present investigation is that these universities were founded long time ago, and they have had a long history of development. All these universities were established in 1960s, since

then they have become leading universities of higher education and research to support human resource for the contribution of the modernization and industrialization processes of the country. According to these university statistics published in their websites, the number of students in each university is around 15,000. On the other hand, the researcher works as an English teacher in a Science and Technology university, so he wants to investigate strategies employed by science-oriented students in order to help students have the better understanding in choosing LLSs to be successful in learning the target language in particular, and science-oriented in the north of Vietnam in general. Therefore, the researcher chooses these universities as the samples of science-oriented universities for the present investigation. Table 3.6 below shows the number of science-oriented universities in different regions and number of students participate in the present investigation in both phase 1 and phase 2.

Table 3.6 List of Science-oriented Universities in the North of Vietnam and Number of Students participating in the Present Investigation

Regions	Science-oriented Universities	Phase 1 of data collection	Phase 2 of data collection
Northern Midland	TN University of Agricultural and Forestry	…	…
	TN Medical and Pharmacy University	5	50
	TN University of Economic and Business Administration	…	…
	TN University of Sciences	…	…
	TN University of Technology	5	165
	TN University of Informatics Technology and Communications	…	…
North East	HP University	5	100
	Thaibinh Medical University	…	…
	Haiduong University of Medical Technology	…	…
	HP Medical University	5	50
	Vietnam Marine University	…	…
	Quangninh University of Industry	…	…
Central	HN University of Engineering and Technology	…	…
	HN University of Science	…	…
	HN University of Economic	…	…
	HN University of Industry	…	…
	Vietnam Forestry University	…	…
	HN University of Sciences and Technology	5	150
	HN University of Mining and Geology	…	…
	HN Agriculture University	…	…
	Vietnam University of Commerce	…	…
	The University of Odonto-Stomatology	…	…
	HN Medical University	5	100
	HN University of Civil Engineering	…	…
	HN University of Public Health	…	…
	HN University of Transport and Communications	…	…
	University of Economic and Technical Industries	…	…
	HN University of Pharmacy	…	…
	Electric Power University	…	…
	VNU-Universityof Engineering and Technology	…	…
Total	**30**	**30**	**615**

Notes: TN stands for Thainguyen; **HN** stands for Hanoi; **HP** stands for Haiphong

As can be seen in Table 3.6 above, there were thirty science-oriented universities in three regions, purposive sampling method was used, and six science-oriented universities participated in the present investigation. Thirty students from six universities took part in the semi-structured interview in the first phase. These students were chosen based on appointments from deans or teaching staff by assuming that they would provide rich, fruitful and helpful information for the present investigation. Moreover, these students' characteristics would cover all the selected variables: gender (male or female), 'perceived' class size (large, optimum or small), major field of study (science and technology or health science), level of proficiency (high, moderate or low) and attitude toward language learning (positive or negative). The data obtained from 30 students of the semi-structured in the first phase provided sufficient data to generate the strategy questionnaire for the second phase of data collection.

In the second phase of data collection, 615 students were simple random sampled from six science-oriented universities which are Science and Technology major, and Health Science major to involve in responding to the learning strategy questionnaires.

The self-report information from semi-structured interview in the first phase and the self-report information from questionnaires in the second phase were gathered and analysed with the assistance of Statistical Package for the Social Science (SPSS) program to answer research questions for this present investigation. Figure 3.3 below shows how the target population was sampled:

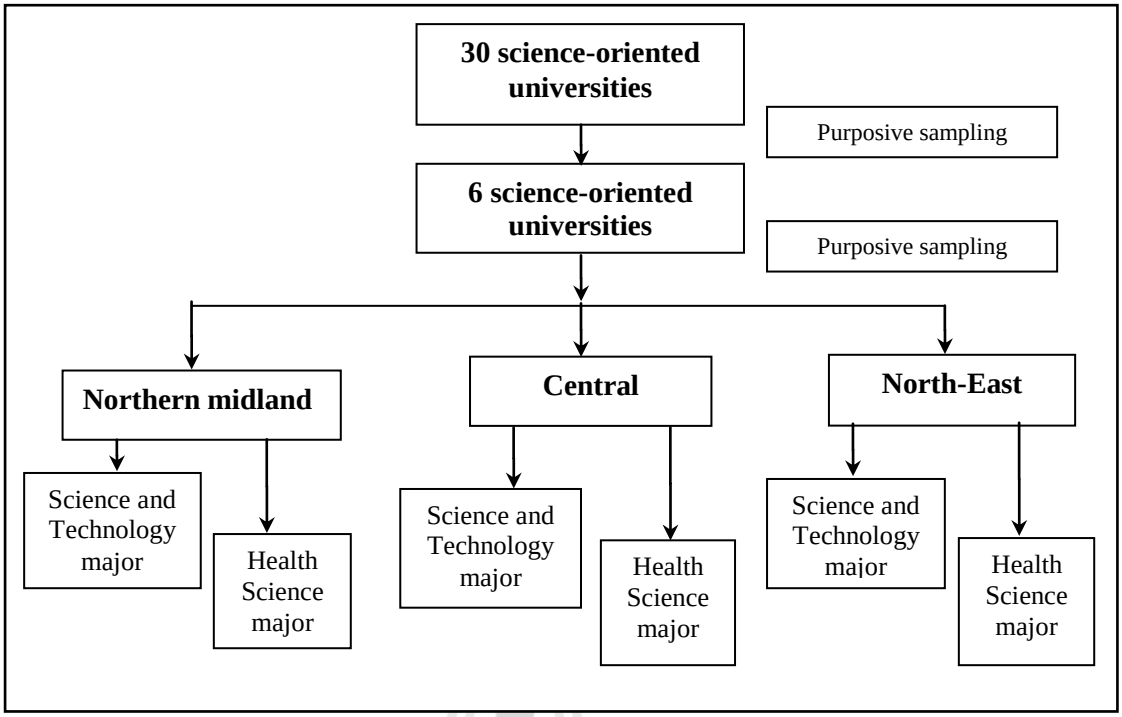


Figure 3.3 The multi-stage sampling of the target population of science-oriented universities

3.7 Framework of Data Collection Methods for the Present Investigation

According to Robson (1993, p. 290), "there is no rule that says that only one method must be used in an investigation. Using more than one method in an investigation can have substantial advantages, even though it almost inevitable adds to the time investment required. One important benefit of multiple methods is in the reduction of inappropriate uncertainty. Using a single method and finding a pretty clear-cut result may delude investigators into believing that they have found the right answer". This means that when doing research works, researchers may apply more than one method to gather data so as to have better results. On the other hand,

different researchers may choose different methods for the purposes of their investigations as Creswell (2003, p. 12) points out “different researchers have a freedom of choice to choose the methods, techniques, and procedures of research that more appropriate to their purposes and their needs”. Since each method of data collections has its own advantages and disadvantages, researchers have to put all methods under their consideration and choose methods which are the most suitable for the purpose of their investigation.

Creswell (2009) suggests that the sequential procedures of strategies associated with the mixed methods approach may begin with a qualitative method for exploratory purposes and follow that with quantitative with a large sample so that it can generalize results to a population. Through the extensive review of related literature on language learning strategies, we can see that many methods of data collection have been employed by researchers and the two methods, which are interview and questionnaire, have been used more frequently than other methods. This is because both questionnaire and interview methods “call for retrospective accounts of the strategies learners employ” (Ellis 1994, p. 534). O’Malley and Chamot (1990, p. 88) affirm that questionnaires and guided interviews are used to draw out language learners’ broadest range of coverage for strategy use. Moreover, in a one-on-one semi-structured interview, according to Berg (2004), the interviewer has the opportunity to obtain detailed information about the interviewee’s feelings, perceptions and opinions along with asking more detailed questions and clarifying ambiguities and pressing on for full answers or following up on incomplete answers. The interviewer may also use precise wording and tailor it to each interviewee and clarify certain questions as requested by each interviewee. Also,

questions can be delved into deeper until the interviewer gets a full sense of what skills the interviewee can provide in learning a foreign language.

For the purpose of the present investigation, which aims to explore and describe type of language learning strategies, and how often these learning strategies are reported being used by Vietnamese science-oriented university students, the researcher used multiple methods of data collection as suggested by Punch (2005, p. 19) “different research methods are required to answer different research questions”. As a result, the two data collection methods: semi-structured interview and written questionnaire were employed in this study by assuming that these methods would be the appropriate methods and provide enough information for the present investigation.

3.8 Methods for Data Collection

To collect data to answer research questions for the present investigation, the semi-structured interview and written strategy questionnaire were used as the main methods. In addition, the language learning attitude questionnaire and the reading proficiency test for science-oriented students were used as the main instruments to collect enough information from participants for the present study. Two types of data collection methods were administered to undergraduate Science and Technology and Health Science students in the north of Vietnam. There were two phases in collecting data for the present investigation. Semi-structured interviews were conducted in the first phase, and then the language learning strategy questionnaire was used in the second phase of data collection.

3.8.1 Semi-structured Interview

Semi-structured interview was used as the main data collection method for the present investigation in the first phase. The researcher believed that semi-structured interview would provide enough qualitative data for the study. Many researchers in the field have used this method, e.g. Nunan (1992); Merriam (1998); Madriz (2000); Robson (2002); Denscombe (2003); and Sriboonruang (2009). This method gives interviewees to develop ideas and speak more widely about what researchers want to investigate; furthermore, it helps interviewers to access interviewees' opinion and the interviewees have opportunities to exchange information about attitudes, viewpoints and experiences among themselves.

For the present investigation, interview questions were generated from the review of previous research works carried out in the field of language learning strategies (e.g. Ehrman and Oxford, 1995; Wharton, 2000; Intaraprasert, 2000; and Prakongchati, 2007). The semi-structured interview had 12 questions. The first two questions were designed with intention to have interviewees' background as well as to build the good relationship, trust and confidence between the interviewer and the interviewees. Questions from number 3 to number 12 were used to obtain more background information and to explore language learning strategies that they employed when learning English language (questions 9, 10, and 11). Followings were the specific steps for conducting the semi-structured interview:

1. Arranging time to meet students in 6 universities to make an appointment for the interview (date, time and venue).
2. Stating the purposes of the interview to the interviewees.

3. Interviewing the students with the prepared questions. Tape recorder and Mp3 recorder were used during the interview.
4. Using data obtained from the interview to generate the language learning strategy questionnaire under supervision of my supervisor.

The language learning strategy interview questions list is presented as follows:

1. What is your name?
2. What is your major field of study?
3. How many English classes are you studying this term?
4. How many students are studying English with you this term in one class?
5. According to Q4, do you think your class is large, optimum, or small?
    5.1 Do you think it is a problem for you?
    5.2 Why? Or Why not?
6. According to Q3, do you think it is enough for you?
7. How do you rate your English ability as high, moderate, or low?
8. Do you think that you can learn English well? Why? or Why not?
9. What do you do to improve your English in general?
10. What do you find (think) very difficult for you in learning English?
11. How do you usually solve the problem?
12. Do you have any comments about learning English in your present classroom?

The interview questions were checked the validity by experts, and then piloted with Vietnamese science-oriented students, who were from the target population, but did not participate in the present investigation in order to see whether or not all of the questions were clear for the interviewees. The interview questions were translated

from English into Vietnamese in order to reduce the possibility of being misinterpreted and misunderstood by the participants and they were revised before their actual uses after having feedback from those participating in the pilot interview and a discussion with the supervisor. The language to be used in the interview was Vietnamese.

Each interviewee was arranged at different time to allow interviewees to select the time that was convenient for them to participate in the semi-structured interview. The interviews were tape-recorded and then transcribed later instead of taking notes while the interview was being conducted. It is because according to Intaraprasert (2000, p. 79), "taking notes while conducting the interview can interrupt the interview process and eventually it could result in the failure of the interview". Each interview ended about one and a half hours.

After the interview, the researcher transcribed the data and translated it into English to explore language learning strategies reported being employed by Vietnamese science-oriented university students. Then, the data was grouped and categorized. This became the main source to generate the written language learning strategy questionnaire in order to examine the overall use and patterns of language learning strategies that a large group of students employed in general.

3.8.2. Written Questionnaire

In the second phase of data collection, the written language learning strategy questionnaires were administered to Vietnamese science-oriented university students in order to elicit types and the frequency of the language learning strategies they use. According to Bialystok (1981), using questionnaire to explore language learning strategies employed by students has a lot of advantages as it can easily be

administered to a large group of participants, scoring and data compilation are relatively simple, and more importantly, precise quantitative measures can be derived. Samples for the present investigation came from 6 science-oriented universities except those who participated in the first phase. The items in the questionnaire were generated from the self-report information obtained through the semi-structured interviews, and some of strategy items were adopted from other researchers' works e.g. O'Maley and Chamot (1989); Oxford (1990); Intaraprasert (2000); and Prakongchati (2007), if found appropriate. The questionnaire items were checked the content validity by 3 experts. The language learning strategy questionnaires were written in English and then translated into Vietnamese, and were used as the actual instrument because this would help maximize the ease of administration and ensure greater accuracy of results (Intaraprasert, 2000). The Vietnamese version of the questionnaire was validated by experts and checked the reliability with Cronbach Alpha (α). The written questionnaire for the present study was a 4-point rating scale. The scale was valued 1, 2, 3, or 4 in which:

1 = Never
2 = Sometimes
3 = Often
4 = Always or Almost always

Framework for Data Collection Process

Data Collection Phase 1: Semi-structured Interview
Samples: 30 students from 6 science-oriented universities in Thainguyen, Hanoi and Haiphong. 5 students came from each institution.
Purpose: to explore what language learning strategies science-oriented university students use.

The data obtained from Phase 1 was used to generate the Language Learning Questionnaire for Phase 2 of data collection.

Data Collection Phase 2: Survey questionnaire
Sample: 615 science-oriented students from 6 universities. 206 students come from Health Science major and 409 students come from Science and Technology major.
Purpose: to describe the overall use and the patterns of language learning strategies science-oriented university students used with reference to the investigated variables

3.8.3. Language Learning Attitudes Questionnaire

In order to be able to measure students' attitudes, the researcher begins with the term "attitude". According to Gardner (1985, pp. 91-93), attitude is "an evaluative reaction to some referent or attitude object, inferred on the basis of the individual's beliefs or opinions about the referent". Brown (1994, p. 168) claims that "attitudes, like all aspects of the development of cognition and affect in human beings, develop early in childhood and are the result of parents' and peers' attitudes, contact with people who are different in any number of ways, and interacting affective factors in the human experience". Therefore, attitude may not come out during school life. But it is the duty of school to help students develop positive attitude towards foreign language. Chamber (1999) asserts that learning occurs more easily, when the learner has a positive attitude towards the language and learning. In addition, Gardner and Lambert (1972) show evidence that positive attitudes toward language enhance proficiency as well.

In the present investigation, in order to define students' attitudes toward the English language learning and its relationship with different variables, the Language Learning Attitudes Questionnaire (LLAQ) was administered to all participants. Prior to completing the questionnaires, students were assured that there would be no right or wrong answers, and that their responses would not affect their assessment in the English course. The researcher made it particularly clear that all information would be kept strictly confidential and would be used only for research purposes. The designing of the LLAQ was guided by the principles of combining theoretical input suggested in the literature (e.g. O'Malley and Chamot, 1990; Oxford, 1990; Cotterall, 1995; and Ockert, 2010) with first-hand information initially derived through casual discussions and interviews with teachers and students. It was thought that by using these initial responses, as well as attitudes and strategies suggested in the related literature, a context-sensitive description of students' attitudes will be result (Gan, 2004). Some statement items were adopted, modified or adapted from Ockert's (2010). In the LLAQ, the total consists of 20 items. Students were asked to respond to the items in the LLAQ by checking whether they DISAGREE or AGREE with the statements that best describe their feeling at the moment. The response 'agree' was scored as '1', while the response 'disagrees' was scored '0'. The sum of scores was taken to identify the students' attitude toward language learning. That is, the respondents who got more than 10 scores was considered as 'positive'; whereas, those who got 10 or lower were considered as 'negative'.

The following items were based on Ockert's (2010).

Category 1: Adopted Items with no Changes

- Learning a language may be important to my goals, but I don't expect it to be much fun.
- I think that I could learn pretty much any language I really put my mind to, given the right circumstances.
- I worry a lot about making mistakes.
- I'm afraid people will laugh at me if I don't say things right.
- I like getting to know people from other countries, in general.
- I like to mimic other accents, and people say I do it well.
- In school, if I didn't know an answer for sure, I'd sometimes answer out loud in class anyway.
- I enjoy studying English.
- English is important to me because I want to make friends with foreigners.
- English is important to me because I want to study overseas.
- I study English because being able to use English is important to me.
- English is important to me because I might need it later for my job.
- I study English because all educated people can use English.
- I study English because I must study English.

Category 2: Slightly Changed Items

To get only one main idea of an item, the following items shown in italics were slightly changed by adding or deleting some words in the original items for clearer meaning.

- I think I'm a pretty good language learner.
  I think I'm a good language learner
- My language learning aptitude is probably pretty high
  My language learning attitude is probably very high
- English is important to me because I want to read books in English.
- English is important to me because I like English movies or songs
  I like learning English because I want to read books, listen to music, or watch movies in English
- Language learning often makes me happy.

- Language learning often gives me a feeling of success.
  Learning English often makes me happy and gives me a feeling of success
- I study English because it will make my teacher proud of me/ praise me.
- I study English because it will make my parents proud of me/ praise me.
  I study English because it will make my parents or my teacher proud of me
- I study English because I want to do well on the TOEIC test.
- I study English because I want to do well on the TOEFL test
  I study English because I want to do well on the TOEFL, or TOEIC, or IELTS tests

Category 3: Deleted Items

The following items were omitted since they may cause a misunderstanding (i.e. it annoys me when people don't give me a clear-cut answer, but just beat around the bush), or they did not reflect the realities and were not suitable for students' studying conditions in mountainous area (i.e. speaking the language of the community where I'll be living will let me help people more than I could otherwise).

- I don't have any idea about how to go about learning a language.
- I end up trembling and practically in a cold sweat when I have to talk in front of people.
- I find it hard to make conversation even with people who speak my own language.
- I feel a resistance from within when I try to speak in a foreign language, even if I've practiced.
- It is a mark of respect to people to learn their language if you're living in their country.
- Speaking the language of the community where I'll be living will let me help people more than I could otherwise.
- I don't like the idea of relying on speaking English (or my mother tongue) in another country.

- I think the people of the country where I'll be living would like for me to learn their language.
- I won't really be able to get to know people well if I don't speak their language.
- There is a right and a wrong way to do almost everything, and I think it's my duty to figure out which is which and do it right.
- It annoys me when people don't give me a clear-cut answer, but just beat around the bush.
- You should say "yes" if you mean yes and "no" if you mean no. Not to do so is dishonest.
- You have to understand people's culture and value system before you can be sure whether some things are right or wrong.
- I can do impersonations of famous people.
- I find it easy to "put myself in other people's shoes" and imagine how they feel.
- I often think out loud, trying out my ideas on other people.
- I want to have everything worked out in my own head before I answer.
- I'd call myself a risk-taker

The LLAQ was administered to 615 science-oriented university students right after they finished their RPT-SoS and LLSQ. Results of the LLAQ are presented in Table 3.7 below:

Table 3.7 Summary of the Students' Attitude toward Language Learning

Major	Positive		Negative	
	Male	Female	Male	Female
Science and Technology	276	60	55	18
Health Science	52	113	22	19
Total	328	173	77	37

3.9 Analyzing, Interpreting, and Reporting Data

3.9.1 Semi-structured Interview

The interviews data were transcribed and translated into English, and analysed by using Strauss and Corbin's (1990) coding which is used to identify general categories from participants' responses to clarify language learning strategies used by science-oriented university students in the north of Vietnam as well as the influence of the investigated variables (if any) on language learning strategies and learning outcomes. Coding is the process of developing categories of concepts, and themes emerging from the data in order to group the differences and similarities between the language learning strategies in which students are reported to be used. Data collected from the interviews were used to examine the overall use and patterns of language learning strategies that a large group of students employed in general, and to generate the Language Learning Strategy Questionnaire.

3.9.2 Language Learning Strategy Questionnaire

The returned questionnaires were tallied and tabulated with the assistance of the Statistical Packages for Social Sciences (SPSS) programme to identify the correlated relationships of variables regarding language learning strategies. The researcher also attempted to find and analyse whether there are patterns of LLS use in relation to each of the five variables. If any, what kind of patterns exist

3.9.2.1 Frequency of Strategy Use

This method was used to compare the degree to which strategies were reported to be used frequently or infrequently by students in general. There are three levels of strategy use: 'high use', 'medium use', and 'low use' based on the holistic

mean scores of frequency of strategy use (Intaraprasert 2000, p. 85; 2002, p. 60). In the present investigation, this method was applied to answer research question 2.

3.9.2.2 Analysis of variance (ANOVA)

According to Nunan (1989), ANOVA is used to test the significant differences among the means of two or more groups on a variable to see whether the variation is greater than predicted. The independent variables are usually nominal, and the dependent variable is usual an interval. For the present investigation, this method was used to determine the relationship between learners' overall reported strategy use and 1) gender (male or female), 2) 'perceived' class size (large, optimum or small), 3) field of study (science and technology and health science), 4) attitude toward language learning (positive or negative), and 5) levels of language proficiency (high, moderate, or low).

3.9.2.3. The post-hoc Scheffé Test

This method was used to examine the significant differences as the result of ANOVA where the variable has more than two groups. This test is used to indicate which pair of the groups under such a variable contributes to the overall differences. As a result, in the present investigation, the post-hoc Scheffé test was used to test the significant differences of students' perception of their class sizes (large, optimum, small), and students' levels of reading proficiency (high, moderate, low).

3.9.2.4. Chi-square Tests

According to Howitt and Cramer (2000, p. 142), the Chi-square tests is the statistical method used "when dealing with data which involve frequencies rather than scores". In addition, this test is also used "to determine whether there is a

relationship between the two variables" (Weiss 1995, p. 756). For the present investigation, this method was used to determine the significant variation patterns in the students' reported strategy use at the individual item level. These tests are employed to check all the strategy items for significant variations by 1) gender (male or female), 2) 'perceived' class size (large, optimum or small), 3) field of study (science and technology and health science), 4) attitude to language learning (positive or negative), and 5) levels of language proficiency (high, moderate, or low). This test compared the actual frequencies with which students had given different responses on the 4-point rating scale, a method of analysis closer to the raw data based on average responses for each item. For the Chi-square tests, responses of 1 and 2 were consolidated into a single "low strategy use" category and responses of 3 and 4 were combined into a single "high strategy use" category. According to Green and Oxford (1995, p. 271), the purpose of consolidating the four response levels into two categories of strategy use is to obtain cell sizes with expected values high enough to ensure a valid analysis.

In sum, in the present investigation, ANOVA and post-hoc Scheffé tests were used to determine patterns of variations in students' overall reported strategy use in relation to five variables mentioned in Research Questions 2, 3, 4, 5, 6, and 7. After that, the Chi-square tests were used to check the significant patterns in frequency of students' reported use in relationship with their gender, major fields of study, 'perceived' class size, attitude toward language learning, and levels of language proficiency in Research Questions 3, 4, 5, 6, and 7 accordingly.

3.10 Summary

In this chapter, the researcher has shown the readers a background of research methodology in language learning strategies. Theoretical framework and rationale for selecting variables for the present investigation are also presented, followed by research questions; sampling and rationales for the choice of subjects; and the characteristics of the population; and framework for data collection method. The last part of this paper dealt with how data collected were analyzed, interpreted, reported.

The data obtained through both phases of data collection were analysed and presented in the following chapters. Chapter 4 deals with the results of the student semi-structured interviews which later were used to generate the language learning strategy inventory, and the language learning strategy questionnaire. Then, the results of the data obtained through the LLSQ are presented in Chapters 6 and 7.

CHAPTER 4

LANGUAGE LEARNING STRATEGY INVENTORY AND THE STRATEGY QUESTIONNAIRE

4.1 Introduction and Purpose of the Chapter

The main purpose of this chapter is to concentrate on the Language Learning Strategy Inventory (LLSI) which emerged from the data obtained through students one-to-one semi-structured interview conducted with thirty science-oriented students from six universities in the north of Vietnam. The interviews were used to explore what language learning strategies these students used with reference to the four investigated variables in this study: 1) gender (male and female); 2) major fields of study (science and technology, and health science); 3) 'perceived' class size (large, optimum, and small); and 4) attitudes toward language learning (positive and negative). This is followed by the description of how to generate the LLSI based on the data obtained through the semi-structured interviews. Then, the generation of LLSI and how to validate it are discussed. The last part of this chapter ends with the Language Learning Strategy questionnaire (LLSQ) which has been used as the main instrument for the second phase of data collection.

Based on the language learning classification system presented in Chapter 2, it is generally accepted among many researchers that no single classification system of language learning strategies is perfect. Intaraprasert (2000, p. 88) pointed out that

"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". Therefore, the researcher took the LLS classification system proposed by different previous researchers into consideration, and then found the most suitable and effective method to elicit language learning strategy use reported employing by science-oriented university students in the north of Vietnam to generate the LLSI for the present study.

4.2 The Main Stage of the Semi-structured Interview

In the present investigation, the one-to-one semi-structured interviews were used as the main method for data collection in the first phase. The oral interviews were carried out with thirty science-oriented students who were purposively selected from six universities in the north of Vietnam from May to July 2011. The purpose of the semi-structured interviews was to obtain students' use of language learning strategies in learning the target language, as well as to find out how they improve their specific English language skills and their knowledge of the language in general. The interview questions were piloted in Vietnamese with six students in TNUT to check the clarity and comprehensibility of all questions prior to be used in the actual interviews. With comments from those participating in the pilot interviews and with a discussion with the researcher's supervisor, the interview questions were re-worded and refined before their actual uses. The interview questions were mainly designed to ask students' perceptions about their class size, their attitudes toward language learning, what problems they encountered when learning the English language, and how they solved the problems. The content of the interview questions partly emerged from the related literature review, available research works in the field of LLSs, and

partly through the researcher's personal experience as a language learner and a language teacher. What follow are the summary of the sample interview questions for the present investigation:

Questions 1, 2: to know background information of the interviewee's name, and field of study

Question 3: to investigate how many English courses that interviewee has already studied or is studying

Question 4: to know the number of students studying English in the interviewee's class

Question 5: to explore interviewee's perception of his (her) English class size

Questions 5.1, 5.2: to investigate interviewee's opinion if the class size he or she has perceived is a problem

Question 6: to know the frequency of English classes he or she has a week and if it is enough

Question 7: to investigate interviewee's perception of his or her language ability

Questions 8, 9: to elicit the interviewee's language learning strategies in every single skill

Questions 10, 11: to investigate interviewee's opinion about what he or she finds difficult in learning English and how those problems were solved

Question 12: an investigation of each student's comments about English learning and teaching from their experience.

The researcher started the oral interview process by going to meet the rectors of six Science and Technology, and Health Science universities directly to ask for the permission to interview their students. These universities were randomly stratified from different geographical regions to take part in the first phase of data collection. Two universities (one Science and Technology, one Health science) in each region

(the northern central, the northern midland and the north east) were selected. The interviewees were the students who were studying EAP or ESP, or have already finished that course in the previous semester. The selection of students was to ensure they would provide enough useful information for the researcher to generate a language learning strategy questionnaire to be used as the main instrument in the second phase of data collection. Among 30 students who were interviewed, 15 were Health Science students, and 15 were Science and Technology students.

The researcher spent two weeks of April 2011 at Suranaree University of Technology preparing materials for the interview data collection. The materials prepared included the interview timetable, interview guide, MP3 recorder, and cell phone for interview recordings. Since the interview data collection would be time-consuming and costly, and the researcher did not want to waste time; therefore, all materials were prepared in advance to make sure that everything was ready before starting the interview process.

The first semi-structured interviews were conducted with five science and technology students at TNUT in the northern midland. The researcher is also a lecturer at TNUT; therefore, it was not difficult for the researcher to make appointments with these students before the interview process started. Everything was smooth for arranging an appointment because the students were very co-operative. Before the actual interview happened, the timetable and the interview guide were given to every students as suggested by Intaraprasert (2000, p. 91) that “it was found to be helpful for students to have an interview guide before the interview took place to focus their preparation to respond to the proposed questions”. However, some students seemed to be worried because they thought that they would be interviewed in

English. The researcher had to ensure them that the language used for the interview was Vietnamese which seemed to make them feel more comfortable and confident.

While conducting the semi-structured interviews, apart from the interview skills which were trained and experienced in the pilot stage, the researcher always kept in mind what Dencomsbe (2003) suggested that setting a relaxed atmosphere in which the students feel free to open up on the topic is necessary. In addition, Measor (1985) indicated that one way to build a good relationship between the interviewer and the interviewees is to ask their names or nick names. Therefore, the researcher followed these points and addressed the students by their name like what the researcher did in class when teaching. It was found very useful since the students felt relaxed and confident when responding to the interview questions. During the interview, as stated by Robson (2002), the researcher also listened to the student more than spoke; put questions in a straightforward, clear and non-threatening way to the students; did not ask leading questions; looked satisfied with students' responses, and made students feel that they were understandable and easy to talk to. The researcher did the same interview process to the other five science and technology and health science universities in the northern midland, the northern central, and the north east respectively.

After having finished the interview process, the researcher started transcribing each interview recording verbatim. Then, the researcher translated all the transcriptions from Vietnamese to English. The interview translated-version was then checked by the researcher's colleagues who are English teachers and have taught English for at least 5 years. The next process was to analyze data obtained after translation in order to discover language learning strategies reported to be employed

by these science-oriented university students. The subsequent data analysis was used to generate the LLSI, then the LLSQ for the second phase of data collection.

4.3. The Main Stage of Language Learning Strategy Generation

When all the interview data obtained were transcribed and translated, the researcher started to generate the preliminary language learning strategy inventory by doing the following steps:

1. The researcher carefully read through the interview data regarding language learning strategies reported by 30 science-oriented students from 6 universities to get a whole picture of how they used LLSs in learning the English language.

2. Each language learning behavior or strategy which was consistent with the working definitions of the present investigation (see Section 1.2.1) was accordingly identified, and the codes were then given to such behavior and strategy. The researcher had to be very carefully at this step to ensure that every single reported strategy or behavior was identified.

3. From the list of every single reported LLS, the researcher started to look at the similarities and differences among the reported statements. It was found that the interviewees produced altogether 417 statements about language learning behaviours or strategies to achieve or to enhance the target language. The researcher started to think how to group and categorise these statements.

4. The researcher realized that it was impossible to include all of the 417 behaviours or strategies in the language learning strategy classification. As a result, the researcher had to group these 417 statements according to the similarities of the context or situation in which the learning behaviours or strategies reported employing by 30 science-oriented students. In this step, the researcher also had to deal with the question how to classify these reported statements. Should the researcher follow the classification system like those of Rubin (1981), Ellis and Sinclair (1989), Oxford (1990), Coleman (1991), Intaraprasert (2000), or Prakongchati (2007) classification system which was based on the purpose of strategy use? The researcher decided to try the preliminary classification based on the reported purposes of strategy use. Finally, there were 56 language learning behaviours or strategies remaining, and they were categorized roughly under two main categories: the strategies to enhance the specific language skills, and the strategies to enhance the general language knowledge.

5. In general, students reported 417 statements were employed to enhance their process of learning the target language. The researcher considered these strategies according to the purpose of the students when employing the reported strategies; it meant that the researcher looked at the 'what' students had been done to enhance their language learning, not the 'how' students had been done to achieve the specific purpose. For example, one student reported "*I looked up every new word before I read the reading text, this helped me understand the text clearer*…", another student reported "*I had to read mechanical engineering materials, it was too difficult to understand the*

text so I found a similar reading document in Vietnamese to read, therefore, I could comprehend the reading text in my major…". The researcher found that these strategies were employed to comprehend the specific reading text, not to improve their reading skill. As a result, the researcher had to read very careful every single statement, not only to clarify the specific purpose of each action but also to make sure these reported statements in each group shared the similar characteristics in the context or situation in which they were reported to be used. Finally, based on the 417 statements obtained from 30 students through the semi-structured interview, 74 main groups emerged. It was not easy to merge each strategy use into a suitable group and to find the suitable name to cover most because some strategies reported being employed seemed to overlap with others.

6. At this step, the researcher did some revision and had a discussion with supervisor. After the discussion, the researcher found that some reported strategies tend to be communication strategies. According to Tarone (1980); Ellis (1994); and Cohen (1998), 'communication strategies' are related to language use rather than language learning. The communication strategies are used to enable language users to organize their utterances as effectively as possible to get their messages across to particular listeners. Tarone (1980) also proposed three criteria to determine whether a strategy is for communication or learning which include: a) a speaker desires to communicate a message to a listener; b) the speaker believes the linguistic or sociolinguistic structure desired to communicate a message is not shared with the listener; and c) the speaker chooses to either avoid or attempt to

communicate a message. Taking into account these criteria, 20 of 74 language learning strategies were excluded from the language learning strategy groups.

7. The researcher started to look at every individual strategy in each group to specify clearly the purpose again and came up with nine purposes. Appropriate names for purposes of strategy use were initially given, then the researcher started to match strategy items and each purpose. At this step, the researcher, with the assistance from his supervisor, started to reconsider how these nine groups of strategy use could be classified further. The researcher looked through all these groups again and again to find whether there was a common characteristic these purposes might share. Consequently, the proposed 'Language Learning Strategy Inventory' with two main categories was identified. These include strategies 1) to enhance specific language skills; and 2) to enhance general language knowledge. The first main category comprises four purposes for core language skills (listening, speaking, reading, and writing), and three purposes for supportive language skills (pronunciation, grammar, and vocabulary). The second main category comprises two purposes which are media reliance and non-media reliance strategies to enhance general language knowledge. In order to apply a structure and reference system to the data, abbreviation to each group of categories was given. For example, strategies for speaking skill enhancement is abbreviated to SSSE; therefore, SSSE1 refers to the first individual language learning strategy which students reported employing to try to enhance the speaking skill in the strategy inventory.

In classifying language learning strategies for the present investigation, it was evident that the language learning strategies in both categories were supportive of each other. That is, the strategies which students reported employing in order to enhance the specific language skills may help them improve their general language knowledge or vice-versa. With the same effect, the strategies to enhance the knowledge of vocabulary which students reported employing may help to improve the reading skill. That is, there are no clear-cuts at all among the strategy use. Therefore, the language learning strategies under the two main categories have a spiral rather than linear relationship.

To sum up, the researcher made an attempt to find out the common characteristics of the 417 reported statements obtained through the semi-structured interviews conducted with 30 science-oriented students studying in three regions in the northern Vietnam. Based on the working definition for the present study, the LLSI which includes two main categories emerged. In general, it was found that the students reported employing these statements which could be regarded as 'learning strategies' to improve language skills. These statements were then identified and categorised as the strategies to enhance the specific language skills and the general language knowledge. In doing so, different aspects of language learning strategy classification proposed by previous researchers were taken into consideration so that they could be used to underlie the researcher's language learning strategy classification. The fact shows that the process of generating the LLSI was tedious and time-consuming as this took the researcher over six months to transcribe, translate, group and develop a language learning strategy inventory. However, this preliminary strategy inventory needed validation. The process of validation was presented in the

next section. Table 4.1 below summarises the LLSI which emerged from the data obtained through the oral semi-structured interviews:

Table 4.1 The Outline of the Language Learning Strategy Classification for the Present Investigation

Language Learning Strategy Inventory		
Main Category	**Purpose**	**Individual Strategy**
Main Category 1 Specific Language Skills Enhancement (SSE)	To enhance core language skills (Listening, Speaking, Reading, Writing), and supportive language skills (Pronunciation, Grammar, Vocabulary)	SLSE 1 – SLSE 6 SSSE 1 – SSSE 9 SRSE 1 – SRSE 5 SWSE 1 - SWSE 6 SPE 1 – SPE 5 SGE 1 – SGE 5 SVE 1 – SVE 7
Main Category 2 General Language Knowledge Enhancement (GKE)	To enhance general language knowledge with or without reliance on media	MRS 1 – MRS 5 NRS 1 – NRS 6
	Total: 43 + 11 = 54 individual strategies	

4.4. Language Learning Strategy Inventory and the Validation

Right after the Language Learning Strategy Inventory for the present investigation was generated, the researcher made the LLSI reliable by producing a task in which a list of 20 language learning strategies and then selected 40 randomly reported statements. These language learning strategies and reported statements were randomly ordered. Later on, the researcher asked four of his friends, who were studying PhD in English Language Studies at School of English, Suranaree University of Technology, to do the task. The responses of 4 respondents revealed that thirty-eight of fourty reported statements were consistent with one another, and were also

consistent with those proposed by the researcher. Only two reported statements need to be reconsidered as they referred to special software or machines in narrow engineering major, i.e. e-Prodict 2007, CAD and CAM, or CNC machine. The sample task for the reliability check is presented in Figure 4.1 below:

The Language Learning Strategy Coding

Instructions:

• Please read the list of language learning strategies in (A) and the list of reported statements in (B) carefully. Each reported statement in (B) can be used ONCE only.

• When completing the matching, please give some comments if you have had any difficulties or confusion matching between (A) and (B)

A. List of language learning strategies

…...…… Making use of online resources, such as e-library, online dictionary or Google Translate

…..…….. Using stickers or flash cards

…..…….. Listening to English songs

…..…….. Self-practising with commercial software

…..…….. Learning words' formations or words' roots

B. List of reported statements

1. "Well, I usually watch English movies at weekend, I do not see the subtitles, I try to listen to what they are talking in the movies…"
2. "… Furthermore, my dorm has free Wi-Fi, so we surf the website to search for information that support our major as a doctor and most of the documents and instructions or videos are in English".
3. "The roots of words, medical English has a lot of roots, we learn the roots by heart the guess the meanings. Teachers also emphasize the roots, so most of us have a pocket notes and consult whenever we want…"
4. "Students in my university use eProdict 2007 software. It is an electronic dictionary which supports English for medical students."
5. "I can print out and stick them in my room, so I can learn whenever I like, and the most important is that I see stickers every day, every time, so, it's easy to learn vocabulary like that"

Figure 4.1 Sample Tasks for the Reliability Check

To validate the LLSI, the LLSI was given to five English native speaking university teachers, two of them were teaching English at TUMP, and the other three were teaching Mechanical Engineering at TNUT. The results of the validation of the LLSI revealed that the LLSI was acceptably appropriate both in content validity and wording. What follow are all five teachers' opinions about the proposed LLSI tabulated.

Table 4.2: Opinions of Native English Teachers on the Content Validity of the LLSI

Statements	Experts' opinion on content validity of the LLSI					Total	Mean score	Judgment
	Exp1	Exp2	Exp3	Exp4	Exp5			
Main Category 1 (Item 1-43)	1.0	1.0	1.0	1.0	1.0	5	1.0	acceptable
Main Category 2 (Item 44-54)	1.0	1.0	1.0	1.0	1.0	5	1.0	acceptable

Note: Exp stands for an expert; **1.0** means '**valid**'

4.5 The Language Learning Strategy Inventory

As presented in section 4.3, the LLSI for the present investigation was emerged from the semi-structured interview data conducted with thirty science-oriented university students. When generating the LLSI, the researcher found that the LLSI was not comprehensive enough. As a result, the researcher decided to adapt and adopt some existing LLSs from the researcher's experience as a language teacher, and from other researchers, namely Rubin (1989); Oxford (1990); Intaraprasert (2000), and Prakongchati (2007) since they were reported as useful strategies in language learning in order to make the present LLSI more comprehensive. There were 11 strategies adopted for the present investigation as follows:

- Talking to oneself (Intaraprasert, 2000)
- Encouraging oneself to speak English even when one is afraid of making a mistake (Oxford, 1990)
- Looking for opportunities to read as much as possible in English (Oxford, 1990)
- Having extra writing tutorials (Prakongchati, 2007)
- Doing a part-time job at tour offices, hotels or restaurants (Oxford, 1990)
- Asking the teacher for clarification when appropriate (Prakongchati, 2007)
- Grouping new vocabulary items according to their similarity in meanings or spellings (Intaraprasert, 2000)
- Using new vocabulary items to converse or to compete with peers (Intaraprasert, 2000)
- Playing word games (Prakongchati, 2007)
- Trying to learn about the culture of native English speakers (Oxford, 1990)
- Noticing one's English mistakes and use that information (Oxford, 1990)

In addition, 4 strategies were adapted with slightly changed for the present investigation as follows:

- Taking an extra class at language center (Intaraprasert, 2000)
  Taking an extra *speaking* class at a language centre
- Asking English speakers to correct when one speaks (Oxford, 1990)
  Asking *an interlocutor* to correct a mistake *when speaking English*
- Practicing general English with family members and friends (Prakongchati, 2007)
  Practicing general English with *(...)* friends
- Using mirror for practice (Rubin, 1989)
  Practise pronunciation in front of the mirror

As mentioned earlier, the Language Learning Strategy Inventory (LLSI) for the present investigation emerged from the data obtained through the one-on-one oral semi-structured interviews carried out with 30 science-oriented university students studying in 6 science and technology, and health science universities in the north of

Vietnam. The interview data obtained were transcribed first then analysed qualitatively by doing content analysis, and finally classified into two main categories based on the working definition of language learning which mainly focused on *the enhancement of both specific language skills and general language knowledge* of science-oriented university students. The samples statements with regard to the LLSs reported being employed by science-oriented students were translated in to English and demonstrated, each student as the interviewee was labeled according to the university where he or she was studying. For example, TNUT1 refered to the interviewee who was a student studying full time at Thai Nguyen University of Technology, and he or she was the first student who was interviewed.

4.5.1 Strategies for Specific Language Skills Enhancement (SSE)

This main category includes 43 strategies reported employing by 30 science-oriented university students in order to enhance the core skills (listening, speaking, reading, and writing), and the supportive skills (pronunciation, grammar, and vocabulary).

4.5.1.1 Strategies for Listening Skill Enhancement (SLSE)

Almost all science-oriented students reported that they knew the importance of listening in learning EFL as well as in their near future career. First and foremost, they enhanced listening skill to answer questions in class, to understand and to find underlying meanings in what their teachers or instructors say or simply, to relax. Many students reported that they employed many strategies to improve their listening skill. In doing so, they reported the following strategies:

- **SLSE1: Listening to English songs**

Some students reported that they listening to English songs to enhance their listening skill. They found this way is not only interesting but also helpful in learning the English language as follow:

HMU2: *"... Sometimes I listen to English songs and I found that I can improve my listening skill by listening to my favourite singers as MJ or Mariah Carey..."*

TNUT1: *"... With hi-technology as nowadays, learning at the university is just to know English; we can improve more by watching English movies, listening to English songs to improve our listening skill ..."*

HPU2: *"... My favorite singers are Westlife and Boyzone, I nearly remember and sing all their songs. This way helps me to improve my listening as well as the way to connect sounds in English..."*

TNUT5: *"...to improve my listening skill, I listen to English songs..."*

HUST4*: "... my SD card is full of English songs, I listen to them every time I have free time, sometimes I sing along. This helps me much ..."*

- **SLSE2: Listening to radio programs in English**

Apart from listening to English songs, some students reported that they also listened to radio program broadcasting online or through stations. They made use of "learning English programs" on radio or to be acquaintance with the sound as follows:

HMU2: *"... I listen to the VOV News every 11 p.m, the reporters are Vietnamese and it's quite easy for beginner listener like me ...."*

TNUT2: *"... I often listen to the English online program on radio at BBC English because they teach us how to pronounce words and help me to be familiar with native intonation ..."*

HPMU2: *"... we listen to English songs or news from FM channel like BBC or VOA. They are very helpful because it's native English and they speak beautiful English ..."*

HMU1: *"... before learning English, I've never listened to radio, then my friends told me, and it really helped me to improve my listening skill..."*

HUST3: *"... listening to radio is a good way; I listen nearly every night..."*

- **SLSE3: Watching television programs in English**

Internet TV, cables TV or satellite TV are available in Vietnam nowadays, most students found that watching television programs could help them to enhance their listening skill. They reported as follows:

HPMU2: *"... I usually watch English movies at weekend, at first I do not see the subtitles, I try to listen to what they are talking in the movies, then I see the subtitle to check whether I listen right or wrong and after a semester I found my listening improve a lot ..."*

TNUT5: *"...watching an English movie without subtitles is a good way to improve my listening ..."*

HUST3: *"... Sometimes I watch cartoons; Cartoons are for children, so they narrate what is happening quite slowly, it's better to listen in cartoons ..."*

HMU1: *"... I watch English movies; I love cartoons and Harry Porter series. I read books first then watch movies ..."*

HPMU1: *"... Sometimes I watch English news on TV, they read quite slowly and I can hear a little bit easier ..."*

- **SLSE4: Attending extra classes where native English speakers teach the English language**

Some students reported that listening directly to native English speakers is one of the best ways to enhance their listening skill; therefore, they tried to attend extra classes where native English speakers teach the English language.

HPU1: *"... There are many volunteer English teachers in my university, so whenever they come, I attended their English classes improve my listening skill ..."*

HUST2: *"... Listening to native speakers is also a very good way of improving listening and pronunciation, as a result, attending their classes is very useful to me ..."*

TNUT3: *"...why don't we go to native English classes, I always find chance to attend their class to improve my listening skill ..."*

- **SLSE5: Seeking an opportunity to listen to the English language**

Finding as many opportunities as possible to listen to English language was reported as a good way to enhance listening skill. Science-oriented students reported as follows:

TUMP3: *"... Sometimes, I listened to foreign lectures or recorded the lectures to listen again at home. It's quite interesting because I have time to pay attention to the contents of the lectures as well as their speeches to improve my listening ..."*

HPU4: *"...in the university or wherever I met a foreigner, I find chance to talk with them, to listen to them, sometimes, just to say "hello" ..."*

TUMP2: *"...making use of foreign teachers in my university, speak to them, listen to them, I have no chance to use Vietnamese, therefore, you know, I improve listening by this way ..."*

- **SLSE6: Listening to the recording repetitively**

Some students reported that listening repetitively could help them remember sounds, word connections and understand the contents; as a result, they could enhance their listening skill.

HUST3: *"... I mean (positive listening) I myself want to listen, for example, I listen to what I want, if I cannot listen, I rewind and listen again, If I don't understand a word, I Pause it and find the meaning in the dictionary the listen until I understand ..."*

TNUT4: *"... Listen to Course book listening exercises, we are studying New Cutting Edge now, I listen repeatedly the CD included in the book ..."*

HPU3: *"... For my listening skill, I don't count on quantity, I mean, once when I listen to one speech or one exercise. I listen repeatedly until I understand all. I listen many times until I can remember every single word ..."*

HMU5: *"... When I listen, I don't focus on words that I have already known, I paid attention to words or phrases that I first met. Listen to how they are read and how the (native) speakers connect the words in a sentence. Sometimes I don't understand what they said but it's ok ..."*

4.5.1.2 Strategies for Speaking Skill Enhancement (SSSE)

Not only listening skill, students also reported that speaking skill was really important to them since they had to speak in classes, pass the oral exams, and further in their life, they would like to pass the job interview. Some students reported that it was difficult to speak, to communicate in English; therefore they had to force themselves to learn the language. Following are strategies they employed to enhance their speaking skill:

- **SSSE1: Participating in discussions in groups or classes, or clubs**

Students could not enhance the speaking skill without an interlocutor or partner, so they participated in discussions in groups or classes to have more chance to enhance the skill. Followings are what they have reported:

TNUT4: *"... Sometimes I take part in the English club on Saturday evenings to have more chance to speak in English with teachers and friends ..."*

HPMU2: *"... here we study in group, as we have to go everywhere in group, especially when we go to hospital. So my group and I study together, and we divide our speaking lesson into parts and each person has to finish one's part to help the rest when we discuss in class ..."*

TNUT3: *"... We can practice speaking with our teacher or work in groups ..."*

HUST2: *"... We talk about real situations in group, for example, asking about timing and working. Sometimes we meet and talk to foreign language teachers ..."*

- **SSSE2: Self-practising with non-course books**

Sometimes, students could not find partners to practice speaking, they had to train themselves with non-course books which they bought from bookshops or borrow from library.

HPU1: *"... When I have time I will learn it harder by buying commercial books of communicating language like "500 essential communicating structures" or "200 survival English sentences" to practice ..."*

TNUT4: *"...at the beginning of the course, my teachers introduced some books and encouraged out class to buy together. We got some useful communicative books since I found I can speak English now ..."*

HMU2: *"... Or learning from public communication course book because by reading these books, I found many interesting situations I may speak in real life ..."*

- **SSSE3: Seeking an opportunity to communicate with foreigners or native speakers of English**

Science-oriented found that their speaking skill improved when communicating directly to foreigners or native speakers of English since they have to afford themselves to convey what they wanted. Some of them reported employing the strategies as follows:

HPU2: *"... I try to improve my speaking by going to foreign class in my university to chat with them, or asking them to go out to have meals with me. We chatted about everything. It's easy to understand each other. Sometimes, I had to use body language but it's ok. We understood each other very well ..."*

HMU5: *"... In Hanoi, we can go to the parks to meet foreigners or meet some foreigners in our university ..."*

HMU1: *"... And we talk in the hospital with some specialists from developed countries, they come from Holland and Sweden, they are not native but they speak English very well ..."*

HMU2: *"... Or in our university, we have volunteer native language teachers, I tried to talk with them once a week ..."*

HPU1: *"... I try to communicate with professor from America as much as I can ..."*

4.5.1.3 Strategies for Reading Skill Enhancement (SRSE)

The fact shows that reading is one of the most important skills of science-oriented students. Almost course books, manuals, instructions in machines … are written in English. As a result, students have to enhance their reading skill in order to satisfy the program requirements as well as their future life. Following are strategies that students reported employing to enhance their reading skill:

- **SRSE1: Reading English brochures, leaflets or billboards**

Some students reported that reading brochures, leaflets or billboards made them have a habit of reading English everywhere, every time, and whenever they had chances:

HUST2: *" ...When I park my motorcycles, somebody put on some brochures or advertisement papers, I read it by chance or sometimes I wanted to read to find out what they advertised or to find out what was sale-off ... very useful to improve my reading ..."*

HPU3: *"...I love some Korean girl bands, that's why I often found their information about their performance in billboards in out fan club. Later on, I found my English reading improved much ..."*

HUST1: *"...when I was on the way to university, or when we were travelling, reading English boards of advertisement of notification is quite exciting, sometimes I didn't understand, I recorded or took pictures for further understanding at home. This improved my reading a lot ..."*.

- **SRSE2: Reading materials of one's major in English language**

The language of instructions and written in course books are Vietnamese, however, students reported that reading materials in their major in English could help them enhance their reading skill and broaden their academic knowledge. They reported as follows:

HMU1: *"... Sometimes, we use the course book in our major in English to find the knowledge of the same topic as what we are reading and vice-versa. Because the fact cannot change, so we find it easier to understand ..."*

HPU1: *"... I also read books in electrical engineering in English to improve my English ..."*

TUMP2: *"... I hate to say this, but English in medical science is so difficult, furthermore, in Vietnamese, we don't have equal meaning words, so I have to read the original documents. By the way, I found it helpful, not only my knowledge is reinforced but also my reading skill is enhanced ..."*

TNUT4: *"... Luckily, my major (telecommunication) shares many words to English as a result; sometimes can read books about it in English ..."*

- **SRSE3: Reading short stories or funny stories in English**

Apart from reading materials in English, students also reported reading short stories or funny stories were helpful to enhance their reading skill:

HUST3: *"... I read short stories, short funny stories in English. Long texts make us scared, so short, funny stories make us exciting when reading ..."*

TUMP1: *"... not only reading in class, I like reading comics, funny and exciting, I could improve my reading by this way ..."*

TUMP5: *"...To practise reading skill, I often read stories about life. I have funny books with both English and Vietnamese. Actually I can't understand all ..."*

- **SRSE4: Reading instructions or manuals in English**

Some students reported that almost machines, medical facilities, and specialized medicines in Vietnam are imported, they had to read well in order to be able to use the devices correctly. Reading instructions or manuals in English was the answer of almost all students interviewed. Following are what they reported:

HUST1: *"... Furthermore, my dorm has free Wi-Fi, so we surf the website to search for information that support our major as a doctor and most of the documents and instructions or videos are in English ..."*

TNUT1: *"... when we go to laboratories, almost facilities are imported, so we have to read all instructions and manuals in English, only some chemical elements' labels have English and Vietnamese ..."*

HMU4: *"... sometimes I read the instructions of medicine which were always put around us to improve my reading ..."*

TNUT5: *"... to operate a machine, I have to read the manual and safety instructions first. If I don't remember, I will get low score ..."*

TUMP2: *"... it's terrible but I must agree that reading medicine manuals for a long time help me much in my specialized area, especially, in reading the English language ..."*

4.5.1.4 Strategies for Writing Skill Enhancement (SWSE)

Writing is one of the four core skills, although many students reported that it was difficult to develop the ideas, to use the right structures, they reported employing some strategies to enhance their writing ability. Six individual strategies which students reported employing in order to achieve that writing purpose include:

- **SWSE1: Writing e-mails, diaries, notes, messages, letters, or reports in English**

Some students reported writing e-mails, diaries, notes, messages, letters, or reports in English is a good strategy to enhance their writing, mostly writing e-mails to their classmates who are foreigners:

HUST3: *"... I will write diary in English, try to write every day, at the beginning I will write shortly with short sentences then as time goes by I will write longer. In fact I don't have much to talk about writing ..."*

HPU2: *"... I usually write e-mail to foreign students who also study in HPU ..."*

HMU5: *"...we email to our foreign students in the joint-program to discuss about our solutions to a problem. I found my writing skill improve much ..."*

- **SWSE2: Practising writing sentences in English**

Practising writing sentences in English was reported using by many students, it may helpful to students since they could practise whenever they have time:

HUST3: *"... Moreover, I try to find out which word always goes with which words, with which prepositions, and I make sentences with that word ..."*

HMU2: *"... I write simple sentences, I don't make them too difficult ..."*

HMU3: *"... For writing, I tried to write short sentences and short paragraph first by using given structures, and then make it difficult later ..."*

HPU3: *"... I think I am not good at writing, so I will add words to structures in order to make right sentences like what I do with maths functions ..."*

- **SWSE3: Comparing one's writing with friends'**

When writing, students did not know whether their writing was right or wrong, sutable or unsuitable, therefore, they compared their work with their classmates or whoever lived around them:

HMU2: *"... then I ask my friends who is better than me in English to check errors for me, or if I write in school, I'll ask my friends who are better than me for help..."*

TNUT4: *"...When I was not sure about my writing, or stuck in a paragraph, or even when I finished my writing, I found a friend to cross-check ..."*

HUST1: *"...Sometimes, I have to write essays in English, so the best way to check our writing is to cross-check with my friends, foreign friends are the best to check, too .."*

- **SWSE4: Seeking assistance from other people, such as teachers or friends**

Apart from comparing with friends' writing, some students also reported that they seek assistance from other, i.e. teachers or friend to help to improve their writing skill as follows:

TNUT2: *"... our teacher often introduces the structures that are used to write. It is quite easy to write the content. We should use grammatical structure correctly. Besides, we can add, delete, or change words. We also add some accompanied sentences, then I may ask my teacher to check spelling and grammar for me ..."*

TUMP3: *"... Now, sometimes we have to write reports in English. I read other's work then I follow. Or I read the text in the course book to find how they write then I do the same ..."*

TUMP3: *"... I write sample topics in the course books then teachers may check in class if it is my turn, if not, I will ask them after class time ..."*

- **SWSE5: Doing extra writing exercises from non-course books**

Like making sentences in English, doing extra writing exercises from non-course books was also reported being employed by many students. They bought writing exercise books and practiced by themselves:

TNUT3: *"... I bought a book about writing then practice writing sentences, paragraphs, essays ..."*

HUTS4: *"... I have read some books about how to use words, how to write a paragraph and the way to make questions ..."*

TUMP3: *"... I do fill in exercises or make sentences use suggested words or change active and passive sentences. Then I make simple sentences, write simple topics ..."*

4.5.1.5 Strategies for Pronunciation Enhancement (SPE)

A large numbers of students reported that they could not pronounce the word in an exact way even though they had tried their best. However, they reported employing the following strategies which they found their pronunciation improved:

- **SPE1: Imitating native speakers**

Many students reported that imitating native English speakers was the best way to enhance their pronunciation. In their thinking, whatever native English

speakers spoke, it was the standard that they should follow. Different students reported employing this strategy as follows:

HPU1: *"... English pronunciation is far different from Vietnamese. So I try to imitate the sound of native English speakers, like the child ..."*

TUMP5: *"... I learn pronunciation with my English teachers who are English and Australian. I often intimate the ones who teach well. I will pay attention to them, especially their mouth shape to imitate ..."*

TNUT2: *"... Imitating is a way students often do. I often imitate pronunciation of my foreign teachers. They pronounce very well, some of my Vietnamese teachers are very good, too ..."*

- **SPE2: Checking one's recorded pronunciation against the recordings**

Apart from imitating native English speakers, some students also reported that they recorded their sound then check their sound against the recordings to make sure whether the pronounced right or wrong:

TNUT1: *"... I usually learn the pronunciation recording my sound or tried to pronounce along with the CDs ..."*

HPU1: *"... I also record the whole sentence then I check again and correct myself ..."*

TUMP2: *"... I try to pronounce as close to the tape as possible, something like mimic and I find that I can pronounce better after a year here in comparison with online dictionary ..."*

TUMP3: *" I also record my voice to check with the CD which included in the book"*

- **SPE3: Using a dictionary to check one's pronunciation**

Almost all students in the interview responded that they mainly relied on dictionary to learn pronunciation. They looked up the word, checked the transcription then practiced pronouncing the word:

HMU3: *"... if it is too difficult to pronounce I may look for words in dictionaries, look for pronunciation ..."*

HPU2: *"... I learn vocabulary by looking up new words in dictionaries to check the pronunciation ..."*

HPU3: *"... I improve my pronunciation by using Webster Online and my pocket dictionary. Once when I look up a word, I looked at the transcriptions and then found how to read that word by Webster online ..."*

TNUT2: *"... I often check their pronunciation in the English dictionary to read correctly ...".*

HUST2: *"... when I see a word in the dictionary, I look at its pronunciation first. When seeing the pronunciation, we can easily pronounce it because it has a section which teaches us how to read the phonetic transcription of words in the first section of the dictionary ..."*

- **SPE4: Asking friends or teachers to help check the pronunciation**

A few students reported that they asked friends or teachers to help check the pronunciation. The shortage of class time prevented them from practising pronunciation; however they reported employing the following strategies**:**

TNUT4: *"... There are some differences in pronunciation between our Vietnamese teachers and foreign teachers. Our teachers usually speak slowly and it is easy to follow, so I learnt from them and ask them to help when appropriate..."*

HMU1: *"...the foreign teachers speak faster so it is harder to understand, but they are very eager to help us in pronunciation. I learn by this way..."*

TNUT3: *"...There are some words with their pronunciation in the textbook. If there aren't, I asked my friends who study English better than me to help..."*

4.5.1.6 Strategies for Grammar Enhancement (SGE)

Some students reported that they considered grammar was the most basic aspect in learning the English language. They spent a large amount of time to learn grammar by doing extra grammar exercises. They also reported that they felt confident in learning English when their grammar knowledge was rich. Five

individual strategies which students reported employing in order to achieve this purpose include:

- **SGE1: Doing extra grammar exercises from non-course books**

All the interviewed students responded that they did extra grammar exercises from non-course book at home. They reported that doing extra grammar helped them remember grammar structures well and able to learn others skills better:

HUST2: *"... I bought a book then I did more exercises about what I find difficult. The same types of exercises and do it repeatedly ..."*

HUST2: *"... Do more exercises with different levels in grammar reference books, from easy to difficult ..."*

HMU2: *"... I learn by heart, then write and make similar sentences in my pocket notebook, from course books or reference books ..."*

HPU1: *"... When I have time I will learn it harder by buying commercial books of communicating language like "500 essential communicating structures" or "200 survival English sentences" ...*"

TUMP5: *".... In term of grammar, I often learn and do exercises in some books that I bought when I come to university. (exercises of tenses, word-filling, making sentences) ..."*

- **SGE2: Taking notes on grammar points**

Some students paid attention on taking notes on grammar points in order to enhance their grammar skill as follows:

HPU1: *"... I take notes structures and then add words to make complete sentences..."*

TNUT2: *"... My English grammar book helps me to study structure a lot, because I copied all important grammar points, highlighted to refer later ..."*

- **SGE4: Asking the teacher for clarification when appropriate**

A few students reported that they found it difficult to meet their teachers outside classroom since they were always busy with others classes. However, they

also reported that at least they could meet their teacher to ask them for clarification in their grammar learning:

HUST1: *"... Sometimes we take notes but still not understand, as a result, after class we have to ask teachers again ..."*

HUST3: *"... normally I check myself and learn from my mistakes. But sometimes, I check with my English teachers when they have time ..."*

- **SGE5: Having extra grammar tutorials**

Some students believed that having extra grammar tutorials may helpful to enhance their grammar skill:

HMU1: *"... I share a teacher with my roommates in the dorm, our teacher comes twice a week in the evening and we study grammar together ..."*

HPU5: *"... I went to an extra class in students' club to learn grammar ..."*

4.5.1.7 Strategies for Vocabulary Enhancement (SVE)

Students understand that vocabulary is a vital aspect in language, because it appears in every skill of language, i.e. listening, speaking, reading and writing skill. By knowing the importance of vocabulary, they found many ways to enhance their knowledge of vocabulary. The strategies which students reported employing to achieve this language learning purpose include:

- **SVE1: Memorising words in English**

Almost all students reported that they memorized word in English to enlarge their knowledge of vocabulary as follows:

HMU2: *"... I learn new words every day, but very often, the next day I will forget. Before going to bed, I sometimes memoir the new word and write it on the wall (not real as I use my finger to point the shape on the wall) ..."*

HUST3: *"...When learning vocabulary, I always copy new words to my notebooks with two separate parts: English side and Vietnamese side then I learn by memorizing each side..."*

HPU3: *"... To learn vocab, I looked at the English words, then I write the Vietnamese meanings, then I looked at the Vietnamese and write the English words ..."*

HPU5: *"... To learn vocab, I look at everyday objects at my university and in my labs and try to remember their English words and make it a habit ..."*

- **SVE2: Learning words' formations or words' roots**

Along with memorizing words in English, when learning vocabulary, students found that it is helpful to study the meaning of a new word together with its formation or its roots. They reported employing these strategies as follows:

HUST1: *"... The roots of words, medical English has a lot of roots, we learn the roots by heart. Teachers also emphasize the roots, and I found this way helps me much ..."*

HUST3: *"... when learning new words, first, I see the meaning, pronunciations, stresses, and word formation, for example, what are nouns, adjectives, adverbs of a word ..."*

HUST3: *"... Sometimes, I learn new words in group, or by topic, for example, fruits, animals, transportation I make a matrix of words and learn them in relations to each other ..."*

TUMP3: *"... When learning vocabulary, I try to find all the word formations and how to use them. I also do exercises in filling words. I try to find which type of word is missing, then based on that I can find words to fill in ..."*

- **SVE3: Using stickers or flash cards**

Using stickers of flash cards to enhance vocabulary knowledge was also reported using by science-oriented students since it is helpful and convenient:

HMU1: *"... I can print out and stick them in my room, so I can learn whenever I like, and the most important is that I see stickers every day, every time, so, it's easy to learn vocabulary like that ..."*

TNUT3: *"... My foreign teacher instructed me how to use flash cards to learn new words, this way is really interesting, I feel my vocabulary improve much, I advise my friend to use it, too ..."*

- **SVE4: Translating English words into Vietnamese or Vietnamese words into English**

Translating was reported using by many students when interviewed. They said that this strategy helps them remember both languages and easier for them to memoir the meaning when needed:

HMU1: *"... As I said, I like MJ and Celine's songs, in order to understand their songs properly; I translate all their songs with the help of Google Translate to learn vocabulary ..."*

HPU3: *"... I also translate my favourite English songs to Vietnamese. I find it helpful to improve vocabulary, and the most important is that when singing along with those songs, I feel excited when learning vocabulary ..."*

TUMP5: *"... I also practice translating short stories / comics to improve my vocabulary ..."*

- **SVE5: Grouping new vocabulary items according to their similarity in meanings or spellings**

Learning group of words helps students enlarge their vocabulary effectively as students reported employing the following strategies:

HUP3: *"... I learn new words in group of the same topic, for example, when I learn about "house", there will come: dining room, bathroom, kitchen ... or when I learn about "transportation" there will be many words in this topic such as, car, truck, rail road ..."*

TUMP2: *"...learning new words by grouping them in the same topic was what I have done to improve me vocabulary ..."*

HUST2: *"...I enlarged my vocabulary by learning formations of a word, i.e. its noun, adjective, adverb or stick that word to a preposition as phrase verbs ..."*

- **SVE7: Playing word games**

Playing word games in computers or newspapers was reported as useful strategies to help students enhance science-oriented students' knowledge of vocabulary:

HMU1: *"... Games like Book Worm or Hang man are helpful also, but a little bit difficult as my vocabulary knowledge is still limited..."*

TUMP4: *"...I also do some crossword puzzles in magazines to enlarge my vocabulary..."*

HUST1: *"... We played remembering words game in class, we made a line of words like a train and limited to nouns or verbs. Who couldn't make the train longer, he was lost the game, funny and helpful for us ..."*

4.5.2 Strategies for General Language Knowledge Enhancement (GKE)

The language learning strategies under this main category are also reported being employed by science-oriented university students to improve their general knowledge when learning the target language. The 11 individual language learning strategies reported employing by the interviewees in this main category include:

4.5.2.1 Media Reliance Strategies (MRS)

Some students reported that they used media as a mean to improve their English in general. They reported that these strategies were very helpful and convenient for them to learn the English language. These strategies are:

- **MRS1: Using a mobile phone or a tape recorder or a compact disc**

Mobile phones, tape recorders or compact discs are very popular nowadays. Students reported making use of media devices very often to enhance their general language knowledge as follows:

TNUT4: *"... I found that mobile phone is very useful for me to learn English. I downloaded everything related to my English learning and when I have free time, I can learn whenever I want, wherever I am ..."*

HUST2: *"... I recorded my lessons projects, my reference books, my favourite songs, movies to a CD, so wherever there is a computer, especially in the library, I can improve my English knowledge ..."*

HMU5: *"... In general, now is the time of multimedia, I usually, use my mobile phone, mp3 to gain more knowledge of English. It's very useful to me..."*

HMU2: *"... Recording my voice, teachers' lesson, or listen to a favourite song, or FM, VOA are the ways that I did with my tape recording to improve my English..."*

- **MRS2: Joining a forum or a blog or a chat room**

In the era of Internet, the world is flat. It is evidence that students making use of the virtual world to enhance their English language. They reported joining a forum, chat room or creating a blog as means of enhancing their knowledge of the target language:

TUMP1: *"... I join many English learning forum, there we can share our opinion, we can ask each other how to learn English, how to write a letter in English, how to send a post card to a foreigner etc..."*

HPU3: *"... I created a blog for my classmates to practise English, we tried to write in English, share our knowledge of English, all comments are written in English. It's a rule. This does not only help us improve our writing but also all about the English language..."*

HPU4: *"... I found that forum is the best place to learn English, we can write, we can chat, we can talk, do exercises together, ask and answer questions about learning English ..."*

- **MRS3: Making use of online resources, such as online dictionary or Google Translate**

All the students who participated in the interview stated that they made use of online resources to enhance their English knowledge since it is very useful, convenient, easy to access and fruitful information:

TUMP2: *"... To improve my English, I access English learning website and search for what I want…"*

TNUT3: *"... on the Internet, nothing is impossible in learning English, I usually download materials to learn English there, Google Translate is also very useful…"*

HMU1: *"... well, I make use of online database to search for reference documents or methodology books which help me to improve my English ..."*

- **MRS4: Singing 'karaoke' in English**

Some students also reported that singing 'karaoke' in English was not only exciting but also effective in learning the English language:

HUST2*: "... Singing 'karaoke' is also very fun, we can learn the culture in each song, we can learn to listen, read, and learn vocabulary in a very relaxed way…"*

HMU4: *"...at first we sang for fun, but later on we realized that learning English by this way was quite helpful, not only English e.g. speaking, listening, vocabulary), but also others aspects, e.g. cultures, singers, music styles ..."*

- **MRS5: Self-practising with commercial software**

Many students reported that they bought or download commercial software to practice at home to enhance their English in general:

HUST2: *"... There are a lot of software to learn English nowadays. When I went to university, I bought "Tell me more English" CD-ROM to improve my English…"*

HPU5: *"... buying learning English CD is the way I improve my English, with these software, we can drill every single skill as well as English in general ..."*

HMU3: *"... I improved my English by buying TOEFL packages (training books, test guides, CD-ROM ...)"*

4.5.2.2 Non-media Reliance Strategies (NRS)

Although students reported that media reliance strategies were very useful, it was reported by some other students that they employed strategies to improve their general language knowledge themselves which did not relate to media. These strategies include:

- **NRS1: Creating English learning atmosphere for oneself**

Some students reported that learning English a few hours a week was not enough, they had to motivate themselves or go to the place where everybody learn English together, share their knowledge about English together. They reported the following strategies:

TNUT1: *"...sometimes, to keep way from distraction, I have to go to the library to learn English..."*

HUST2: *"...learning in class is not enough; I had to force myself to learn English ..."*

TUMP1: *"... to improve my English, I go to classes regularly, because in class I was forced to learn English, therefore I could improve my English ..."*

HMU1: *"...English atmosphere is very important to enhance my English in general..."*

HMU4: *"... to learn English well, I have to keep in mind that English is important to my future career, so I have to create myself a learning atmosphere, i.e. going to hospital to discuss with my foreign classmates, going to the library..."*

- **NRS2: Trying to find as many ways as one can to use English**

As a whole, students reported that they concerned about their English every time, everywhere, therefore they tried to find as many ways they can to use English in order to enhance their language knowledge:

HUST1: *"…sometimes I feel shy when I express myself in English, but in general, whenever I have chance, I use English. This helps me feel confident, and in fact, my English is improved, not only listening, speaking but also vocabulary …"*

HPU4: *"…in class I tried to talk with my teachers in English, and with friends in the dormitory, trying to read English books, speaking to foreigners …I tried to practise as much as possible to improve my English…"*

HMU3: *"… even in the street, if I meet a foreigner, I positively proceed him to find chance to practice English …"*

- **NRS3: Asking teachers how to learn English effectively**

It is very common that students ask their English teachers how to learn English effectively. Almost all students responded that they have ever asked their teachers about this matter:

TUMP2: *"…asking teachers how to learn English well, for example, how to remember new words, how to write an essay, how to speak well…"*

HMU5: *"… I sometimes meet my English teachers to ask for advice how to improve my English …"*

HUST2: *"… I think my teachers could instruct me how to study well …"*

HPU3: *"…I think English teachers are people who have been studying English for a long time, so they have some tips to master the English language. That's why I consulted their ideas…"*

To sum up, the language learning strategies inventory for the present investigation was based on the data obtained though the one-to-one semi-structured interview conducted with 30 science-oriented university students who were studying

in 6 health science and science and technology universities. These universities were located in three different geographical regions in Vietnam, i.e. the northern central, the northern midland and the north east. These emergent 54 individual language learning strategies were then classified into two main categories according to the purposes which students reported trying to achieve. These language learning strategies, which consist of both strategies to enhance specific language skills and strategies to enhance general language knowledge, were subsequently used to generate the language learning strategy questionnaire (LLSQ). The LLSQ was used as the main instrument for the second phase of data collection to elicit information about the frequency of LLS use from a larger number of science-oriented students. What follows is the detailed discussion of the construction, the design, the validation and the reliability of the LLSQ for the present investigation.

4.6. Language Learning Strategy Questionnaire

The language learning strategy questionnaire for the present investigation was generated from the language learning strategy inventory and on the basis of appropriateness to the research questions, purposes, and the expected respondents (Cohen et al., 2000). It aimed to measure the frequency of the language learning strategies used by science-oriented university students in the north of Vietnam, and the relationship between the strategy use and five variables including students' major fields of study, gender, 'perceived' class size, attitude toward language learning, and language proficiency levels.

As mentioned earlier, the LLSQ was administered with larger groups of science-oriented university students to elicit information about: 1) students' personal

background information about the four investigated variables: major field of study, gender, 'perceived' class size, and self-rated language proficiency; and 2) the frequency of their LLS use. As a result, the LLSQ was divided into two main sections: 1) an introductory section asking questions about students' personal background information; and 2) a section about the language learning strategies they use when learning the English language.

According to Neuman (2003), large scale surveys have close-ended questions because they are quicker and easier for both respondents and researcher. However, open questions were also provided in the present investigation to get many more possible answers in case something important may lost in the closed-ended questions. As a result, the second section of the present LLSQ has been divided into nine 'Yes/No' questions according to the purpose to be achieved. If the response was 'No', the student was requested to move to the next question. If the response was 'Yes', the student was requested to indicate the appropriate frequency of their LLS use from the range 'never', 'sometimes', 'often', 'always or almost always'. An open-ended choice in the form of 'others (please specify)' was provided the end of each question for students to report more information of their language learning strategies they use.

The LLSQ was generated in English and Vietnamese. The Vietnamese version was actually used as the instrument since the respondents are Vietnamese science-oriented university students, and this helped maximise ease of administration and ensured greater accuracy of results, especially with the lower-ability students (Intaraprasert, 2000). The English version would be used for the purpose of discussion only. The translation of the LLSQ from English into Vietnamese was done initially by the researcher, and then it was checked by 3 Vietnamese PhD students who were

studying at School of English, Suranaree University of Technology, Thailand and 2 teachers who were teaching English at Thai Nguyen University of Education, Vietnam for both content validity and wording. Item Objective Congruence (IOC) technique was used to check the content validity of the LLSQ as suggested by Rovinelly and Hambleton (1977, cited in Turner and Carson, 2003), and the results are presented in Table 4.3 as follows:

Table 4.3 Content Validity of the LLSQ verified by 5 experts

Statements	Experts' opinion on the LLSQ					Total	IOC value	Judgment
	Exp1	Exp2	Exp3	Exp4	Exp5			
Question 1 (Item 1-6)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 2 (Item 1-9)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 3 (Item 1-5)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 4 (Item 1-6)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 5 (Item 1-5)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 6 (Item 1-7)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 7 (Item 1-5)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 8 (Item 1-5)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable
Question 9 (Item 1-6)	1.0	1.0	1.0	1.0	1.0	5	1.00	acceptable

Note: Exp stands for an expert; **1.0** means '**valid or clearly meaning**'

Table 4.3 reveals that based on the IOC values which are more than 80%, the LLSQ was valid in content in all 54 items and in 9 questions. Some words were slightly changed and some needed to be refined for a clearer understanding.

Before the actual use of the LLSQ, the researcher had to check the reliability of the questionnaire as Pole and Lampard (2002, p.102) mention "the questionnaire needs to be considered as a whole rather than simply as a list of questions; hence both questions and questionnaires need to be piloted". The present LLSQ was not piloted; however, Alpha Coefficient (α) or Cronbach Alpha was used to check the internal consistency of the LLSQ. The reliability estimate based on a 615 science-oriented student sample is demonstrated in Table 4.4 below. The reliability estimates are high when compared with the acceptable reliability coefficient of .70, which is a useful rule of thumb for research purposes (Fraenkel and Wallen, 1993).

Table 4.4 Reliability Estimate of the Strategy Questionnaire as a Whole and the Two Main Categories (SSE and GKE):

Language Learning Strategy Category	Strategy Questionnaire as a Whole	SLSE (43 items)	GLKE (11 items)
Reliability Estimate (Alpha Coefficient: α)	**.92**	**.89**	**.91**

Figure 4.1 below shows a sample of the questionnaire used as the main instrument to elicit science-oriented students' frequency of language learning strategy use.

1. Do you try to improve your Listening skill?

Yes ☐ No ☐

If 'No', proceed to 2. If 'Yes', how often do you …?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Listening to English songs	✓			
2. Watching English movies			✓	

Figure 4.2 A Sample of the Language Learning Strategy Questionnaire

4.7. Summary

Strategies for the language learning strategy inventory for the present investigation were emerged from doing content analysis of the one-to-one semi-structured interviews. Based on the purposes to be achieved, the LLSI comprises two main categories, i.e. specific language skills enhancement and general language knowledge enhancement. Fifteen existing LLSs were adapted and adopted in order to make the present LLSI more comprehensive. As a result, the specific language skills enhancement category consists of 43 individual strategies, and the general language knowledge enhancement category consists of 11 individual strategies. The researcher always keeps in mind that the present LLSI is not comprehensive and may not cover all strategies that science-oriented students employed. However, the proposed LLSI may be considered to be representative of the LLS employed by science-oriented students in the north of Vietnam.

The language learning strategy questionnaire was generated from the LLSI in order to collect data for the second phase of data collection. The LLSQ was administered to provide the researcher with three independent variables which were: 'gender'; 'major field of study'; and 'perceived class size'. The other two variables for the present investigation, namely: 'level of proficiency', and 'attitude toward language learning' were obtained through "the language learning attitude questionnaire", and "the reading proficiency test for science-oriented students". Chapter 5 will deal with the construction and validation of the Reading Proficiency Test for Science-oriented Students (RPT-SoS). The results of students' language proficiency levels will also be presented.

CHAPTER 5

THE READING PROFICIENCY TEST

FOR SCIENCE-ORIENTED STUDENTS

5.1 Introduction and Purpose of the Chapter

This chapter aims to present how to construct the test used to determine the research subjects' levels of proficiency through different reading texts. This test will be referred to as 'Reading Proficiency Test for Science-oriented Students' or 'RPT-SoS'. It was specifically designed for use in the present investigation, not particularly related to any course of study of any research subjects. The chapter starts with the theoretical background of testing and language tests, the test construction, the pilot stages, and ends with the science-oriented students' levels of language proficiency for the present investigation.

In terms of test definitions, according to Brown (2004, p. 3), a test is defined as "a method of measuring a person's ability, knowledge, or performance in a given domain". A language test is "one form of measurement" (McNamara 2000, p. 1), and it "plays an important part of every teaching and learning experience" (Madsen 1983, p. 3). Regarding language tests used to serve some particular purposes in language studies research, McNamara (2000, p. 5) points out that "some researchers may need to have measures of the language proficiency of the subjects under their investigation". As a result, language researchers need to have an understanding of

language tests, the abilities of creating language tests, and using tests or the information they provide in practical and research contexts. This is consistent with Madsen (1983, pp. 4-5) who asserts that "good tests can benefit students, teachers, and even administrators".

Student's level of language proficiency is one of the independent variables for the present investigation; therefore, determining the reliable student's level of proficiency or ability is very important since it affects the result of the research. There are many ways to estimate students' ability, i.e. based on students' own perceptions, or making use of students' scores in their previous language learning. However, to obtain students' levels of proficiency in a reliable method, the researcher follows what Alderson, Clapham and Wall (1995) have pointed out that testing plays an important part in language evaluation, and "the higher test score would be a more realistic reflection of ability" Hill (1995, p. 243).

5.2 Types and Purpose of Language Tests

Theoretically, there is no best test or best technique existing (McNamara 2000). Language tests are different in terms of how they are designed, and what they are for in respect of the test method and test purpose. According to Millman and Greene (1993), the test classifications emphasise differences among the various kinds of educational decisions which test scores play a role. Many scholars in the field, such as Harrison (1983); Hughes (1989; 2003); Heaton (1990); Millman and Greene (1993); Alderson et al., (1995); Genesee and Upshur (1996); Bailey (1998) and Brown (2004) have classified language tests according to the purposes of the test. These include:

Placement tests are used to assess students' levels of language ability so that they can be placed in the appropriate class or course (Alderson et al, 1995), or to place students on a scale in relation to other students so that they can be given appropriate teaching (Harrision, 1983; Brown, 2004). This type of test should be administered at the beginning of the course (Heaton, 1990), and should be as general as possible and should concentrate on testing a wide and representative range of students' ability. When designing, testers should avoid concentrating on narrow area of language and specific skills.

Achievement tests are designed to measure students' success in learning some specific instructional content (Caroll and West, 1989) and to accumulate evidence during, or at the end of, a course study in order to see whether and where progress has been made in terms of the goals of learning (McNamara, 2000). This type of test is suitable at the end of the course, or at various stages throughout of a language course (Alderson et al, 1995), and should be firmly rooted in previous classroom experiences in terms of activity practiced, language used and criteria of assessment employed (Weir, 1993).

Progress tests are designed to determine how well the students are doing with the materials that have been covered (Bailey, 1998) at various stages throughout a language course to see what the students have learnt (Carroll, 1980). When administering the test, if teachers test what has recently been taught and practised, they should then expect students to score fairly high marks. If most of the students fail to score high marks, something must have been wrong with the teaching, the syllabus or the materials (Heaton, 1990).

Diagnostic tests are given at the beginning of the school year, midyear, or at the end of the school year. The aim of this test is to measure specific aspects of second language ability usually for the purpose of determining what a student knows and needs to learn or seeks to identify the areas in which students may need further help (Caroll and West, 1989; Alderson et al., 1995). Results of the test can show whether a student needs particular help with a range of skills, or they can be more specific, seeking perhaps to identify weaknesses in the students' uses of grammar or vocabulary (Alderson et al, 1995)

Proficiency tests are designed to test the ability of students with different language training background (Alderson et al, 1995; Bailey, 1998), or to measure how suitable students will be for performing a certain task or following a specific course (Heaton, 1990). This test is also designed to show whether students have sufficient ability to use a language in some specific areas which are often called Specific Purposes Tests (Alderson et al, 1995). The test may be given whenever needed. The content of a proficiency test is not based on the content or objectives of language courses. Rather, it is based on a specification of what students have to be able to do in the language in order to be considered proficient (Hughes, 1989).

Aptitude tests are used to measure capacity or general ability to learn a foreign language and ultimate success in that undertaking, and to apply to the classroom learning of any language (Brown, 2004). In addition, this type of test is also used to predict the possibility of success of a candidate in learning a foreign language or a second language (Henning, 1987; Madsen, 1983). In comparison to achievement tests, aptitude tests cover a broader area and look at a wider range of

experiences. Achievement tests tend to measure recent learning and are closely tied to particular school subjects (Macklem, 1990).

Performance tests are administered to elicit information about students' ability to use the language and to perform authentic tasks, and language skills are assessed in an act of communication (Bailey, 1998; Genesee and Upshur, 1996). These types of tests are most commonly tests of speaking and writing which are elicited from the context of simulations of real-world tasks in realistic contexts (Mc Namara, 2000).

Screening tests (admission tests) are designed to admit or reject students for participation in particular courses or programmes of instruction or toward a certificate of success or completion (Bailey, 1998; Genesee and Upshur, 1996)

In sum, we can conclude that "language test is the procedure for gathering evidence of general or specific abilities from performance on tasks designed to provide a basis for prediction about an individuals' use of those ability in real world contexts" (OUP, 2011, p. 11), and different types of language tests and testing serve a particular purpose. Since the nature of the present investigation is an exploratory research and the participants come from 3 different regions, a proficiency test is considered the most suitable because it is designed to measure the overall ability or proficiency of the research subjects with different language learning background. Furthermore, the proficiency test is not based on any particular contents or objectives of any language courses which are offering at Health science and Science and Technology universities in the north of Vietnam.

5.3 The Construction of the Reading Proficiency Test for Science-oriented Students for the Present Investigation

According to Wright (1987), English for Science and Technology is content-oriented in nature and the acquisition of knowledge through reading practice is the main goal of classroom activities. Clapham (1993) asserted that reading comprehension is the most suitable measure of students' levels of language proficiency. In addition, the researcher, who is also a university ESP teacher, experienced that science-oriented students have to deal with reading skill more than other skills. Science-oriented students have to read textbooks or articles related to their subject area in English other than listening to lectures or communicating with their teachers or their friends. Furthermore, Davies (1984) affirmed that reading comprehension tests have advantages over other modes because tests of language production, i.e. listening and speaking, are reported to be difficult to construct and to use. Therefore, the researcher decided to use reading comprehension tasks in the Reading Proficiency Test for Science-oriented Students (RPT-SoS) to serve the purpose of the present investigation. This is consistent with Ongsakul (1984) who pointed out that reading is the dominant skill of science-oriented students' language learning and their field of study.

Regarding qualities of a good test construction, Olubodun (2007, p. 13) has listed some important points as follows:

- Good understanding of the subject matter on which test is to be made.
- Sufficient knowledge of the testee
- Adequate knowledge of the medium of teaching and learning, which will be understood by the tester and testee.
- Adequate knowledge of different test formats that could be used.

- Creative ability that demands variously on the need to make items that will task the cognitive abilities etc of the testee.
- Enduring strength that will be necessary in constructing, editing, discarding etc of items which can really be overwhelming.

Regarding types of task, Alderson (2000) stated that there is no one ‘best method’ in testing reading. Tasks in the test should not be too difficult or too easy. If the tasks are too difficult, students cannot do any of the tasks then they cannot provide any evidence of their achievements. On the contrary, if the tasks are too easy, all students can do all of the tasks then the most able students will not be able to provide evidence of their advanced achievements. These two types of task have ‘floor’ and ‘ceiling’ effect on students as termed by Izard (2005). As a result, the RPT-SoS for the present investigation used multiple approaches for testing reading comprehension as suggested by Shohamy (1984) since this approach would enable the researcher to tap the students' abilities in reading comprehension and also minimise the discrimination against individual students. In the present RPT-SoS, the researcher decided to require students to perform the following types of task in the test:

1. Choosing appropriate words, phrases, etc. from the text
2. Listing items or ideas from the text relevant to a given topic or concern
3. Matching
4. Finding specific information
5. Filling word(s) in the blanks provided
6. Multiple choices
7. Short-answer questions, up to three words only
8. Sorting events in order
9. True/False or Yes/No

In sum, in constructing the RPT-SoS for the present investigation, the researcher kept in mind what Skehan (1984) suggested that the proficiency test must

have firm theoretical foundation and it should also be carefully piloted and revised if necessary. As a result, the theoretical foundations for the present RPT-SoS were based on the guide in test construction proposed by Clapham (1993) and other researchers which include:

1. The tasks should be as authentic as possible and the marking of the test items should be reasonably straightforward (Coleman, 1991).
2. Since the tests were not intended to test subject knowledge or text content knowledge, the reading texts in the test should be given in students' own area, i.e. health science, and science and technology for the present RPT-SoS (Alderson, 1988).
3. The reading passages should be authentic texts from authentic sources for students in the relevant academic discipline, and should be modified to remove ambiguities of grammatical errors. (Gower et al., 1995). Authentic sources, as suggested by Raatz (1985), can be scientific magazines, books, academic papers or newspapers relating to students' major.
4. Bensoussan (1984) suggested that the reading comprehension test should contain enough items to allow students to demonstrate their English proficiency within a limited time and it must be reliable.
5. The test should be valid and reliable (Vincent, 1985; and Davies, 1984). To validate the test, Clapham (1993) and Alderson (1988) suggested that the questionnaire should be given to language teachers, subject specialists, and a pilot sample of science-oriented students who are to be tested.

6. Bachman (1990) pointed out that long tests are generally more reliable than short ones.
7. Different methods have different effects on how knowledge is measured and consequently on the scores that students obtain as a result of the test.
8. Level of difficulty and power of discrimination of the test must be taken into consideration in selection of test items (Mehrens and Lehmann, 1991).
9. Test should be practical, i.e. it should not be excessively expensive, stay within appropriate time constraints, be relatively easy to administer, and has an evaluation procedure that is specific and time-efficient (Brown, 2004).

5.4 The Reading Proficiency Test for Science-oriented Students for the Present Investigation

As mentioned earlier in Section 5.3, the RPT-SoS for the present investigation (see Appendix 8) was designed to evaluate the levels of language proficiency of northern Vietnamese science-oriented university students. The test contains altogether 50 question items to be tested. Two reading passages (*Bathroom Innovation: New Products Use Technology for Health, Energy Saving*, and *What's a Healthy Weight?*) have been selected with the intention that the content would be relevant to Health science students, while the other twos (*History of Pendulum,* and *Disc brakes*) would be relevant to Science and Technology students. Students are required to finish the test in 1.25 hours. The detail of the RPT-SoS is as follow:

- **Reading Passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving**

This reading passage contains 11 question items (Numbers 1-11). In 25 minutes, the students are expected to perform the following tasks:

1. Questions 1-6: Short answer questions, up to three words only
2. Questions 7-11: Listing items or ideas from the text relevant to a given topic or concern

- **Reading Passage 2: History of Pendulum**

There are 12 question items included in this reading passage. In 20 minutes, students are expected to perform the following types of task for this passage to demonstrate their language proficiency:

1. Questions 12-16: Sorting events in order
2. Questions 17-23: True / False

- **Reading passage 3: What's a Healthy Weight?**

This reading passage contains 16 question items (Numbers 24-39). The students are expected to perform the following tasks in 25 minutes:

1. Questions 24-28: True / False
2. Questions 29-34: Matching
3. Questions 35-39: Filling word(s) in the blank provided

- **Reading passage 4: Disc brakes**

There are 11 question items included in this reading passage. Students are expected to perform the following types of task in 20 minutes to demonstrate their language proficiency:

1. Questions 40-45: Multiple choices
2. Questions 46-50: Finding specific information.

In summary, the researcher-constructed RPT-SoS comprised 50 question items; students had to read 4 reading passages and performed 9 types of task in 1.25 hours.

5.5 The Piloting of the RPT-SoS

Before the test was piloted, the researchers asked two English native speakers who were teaching English as volunteer teachers in Thainguyen University of Technology for the spelling check as well as their feedback. After some changes in the usages and the appropriateness were made, the test was given to the researcher's advisor for the last comment before piloting. The researcher took three stages to check the problems and errors, the reliability, and the validity of the test. The three stages which were: pre-piloting, piloting, and post-piloting were summarised in Table 5.1 below:

Table 5.1 The Stages of the Test Trial

Stage	Pre-piloting	Piloting	Post-piloting
Purpose	To check main problems and gross errors of the test	To do item analysis and to check the validity and reliability of the test	To final check the test
Samples	30 students at TNUT	114 students at TNUT and TUMP	30 students at TNUT
Results	The students provided some comments and implications on the usages of Vietnamese instructions in the test	The item analysis was done as well as the test refinements, test validation	The final conclusion of the test

5.5.1 The Pre-piloting Stage

The pre-piloting stage took place in April, 2011 with 30 students at TNUT. The students were all science and technology students and had already enrolled ESP course. The purposes of this stage were to check the problems which may happen about time allocation, instructions, contents as well as the layout of the test. After finishing the test, the students were asked to complete the questionnaire for comments on the test. This helped the researcher to get the feedback for the test improvement.

The results obtained through the questionnaire attached to the RPT-SoS showed that the overall level of difficulty of the RPT-SoS was rather high. Most of the students reported that the reading texts should be shorter, and the time should be provided longer for each part. On the other hand, some students got very high score and they reported some parts of the test were too easy. Although the item analysis to check the level of difficulty and power of discrimination of the test items was not performed, the researcher kept those feedbacks in mind for the improvement of the test in the piloting stage. What follows is the summary of some implications obtained through the questionnaire after the pre-piloting stage:

- **Test instructions**

Some students reported that the instructions of the test were either too long or too detailed that made them confused by some reasons. The instructions should be clear and focused on the main points. Furthermore, these instructions should be translated into Vietnamese to ensure that all the students would not misunderstand.

- **Time allocation**

Regarding the time for each part of the test, the students reported that they did not have enough time to finish the first two parts while they had more free time for

the others. Therefore, the researcher noticed that the given time was suggested time only, and students could move to other parts right after they finished one part.

- **The length of the text**

Some respondents reported that the reading text was too long, and it took time for them to turn pages up and down. So the researcher would shorten the reading texts in the real test.

5.5.2 The Piloting Stage

The pilot stage took place in May 2011 after some refinements of the test. 114 health science and science and technology students in Thainguyen were selected based on the convenience and availability. The feedback questionnaire was handed out alongside with the test. The students were instructed carefully before doing the test to make sure that they remembered to respond to the questionnaire after they finished the test. In general, everything went smoothly until the end.

Regarding scoring of test items, the researcher decided to give the correct answers score ‘1’ and incorrect answers were given score ‘0’.This could be used for item analysis which would be presented in the next section. Since the test was designed to force students to read quickly, some question items left blank or unanswered implied that the items were either too difficult or the time given was not enough. The blank or unanswered items were given score ‘0’, as well. Hopefully, the students’ final scores demonstrated students’ levels of reading skill.

5.6 Item Analysis

According to Madsen (1983) and Mehrens and Lehmann (1991), item analysis is a procedure or simple statistical way for checking individual test items, or exploring the research subjects' responses to each of the test item so that test writers can judge the quality of the item. Doing the item analysis can provide the test constructor some purposes which Madsen (1983) has pointed out, i.e. how difficult each item is, whether or not the question 'discriminates' or tells the difference between high and low students, and which distractors are working as they should. In addition, Hughes (1989, p. 160) stated that "individual items make their own contribution to the total test. Some contribute more than others". Therefore, it is especially valuable in improving item which would be used again in later tests, but it could also be used to eliminate ambiguous or misleading item.

There are many item-analysis procedures to be made use of, i.e. the classical test theory, the item response theory. For the present investigation, since the subject was 114, the researcher employed the 'Third Technique' to do the item analysis. This is consistent with Mehrens and Lehmann (1991) when they suggested that this technique is suitable when the number of subjects taking the test is over one hundred. In doing so, the students' scores were grouped into the top scoring third, middle third and the bottom third. Then a table was constructed in order to show how many students in the top and bottom scoring thirds got the answer correct top and bottom scoring thirds were chosen to be used with the statistical method to calculate the level of difficulty and power of discrimination of each test item. Figure 5.1 below shows the formula to compute level of difficulty:

$$\textbf{Level of Difficulty} = \frac{R}{T} x100$$

Where R= number of students who answered item correctly
T= total number of students in the two groups combined (high+low)

(Source: Mehrens and Lehmann 1984, p. 191 cited in Intaraprasert 2000, p.151)

Figure 5.1 Formula for Item Level of Difficulty

Regarding the power of discrimination level, the researcher calculated the item discrimination by subtracting the number getting it right in the low group (*RL*) from the number getting it right in the high group (*RH*), and dividing by the total number of students (*T*) in either group. A formula for the power of discrimination level then is:

$$\textbf{Power of discrimination} = \frac{RH - RL}{(1/2)T}$$

(Source: Adapted from Intaraprasert, 2000, p. 151)

Figure 5.2 Formula for Item Discrimination

According to Mehrens and Lehmann (1991), the higher the power discrimination, the better, and the level of difficulty is dependent upon many factors. The most important ones were the purpose of the test and the type of objective items used. Ideal test items selected for the present investigation should be within the value of 0.20-1.00 for the power of discrimination. Regarding the level of difficulty, the value should be within the range of 0.20-0.80 as suggested by Garrett (1996, cited in Castillo, 1990). On the contrary, any test items with the lower or higher value than those mentioned would be judged as weak items, i.e. too easy or too difficult. These items need to be improved or discarded. In sum, the results of the item analysis

provided the researcher with many valuable insights into evaluating the test items, judging the quality of the test, revising of the test, and discussing test results.

The present RPT-SoS comprised question items that reach the acceptable criteria for level of difficulty and power of discrimination as the result of item analysis. Some items that did not reach the criteria mentioned were discarded or improved by changing, modifying, or adding some more items. What follow are the results of the item analysis of the four reading passages (Tables 5.2-5.5)

Table 5.2 Results of Item Analysis of Reading Passage 1 "Bathroom Innovation: New Products Use Technology for Health, Energy Saving"

Item		High	Low	Level of	Power of	Remark
Pilot	Final	(N= 38)	(N=38)	Difficulty	Discrimination	
1	1	32	17	0.6	0.4	acceptable
2	2	28	10	0.5	0.5	acceptable
3	3	20	12	0.4	0.2	*improved
4	4	25	14	0.5	0.3	acceptable
5	--	9	4	0.2	0.1	discarded
6	--	5	0	0.1	0.1	discarded
7	--	9	1	0.1	0.2	discarded
8	5	20	13	0.4	0.2	*improved
9	6	18	9	0.4	0.2	*improved
10	--	11	9	0.3	0.1	discarded
11	7	29	22	0.7	0.2	acceptable
12	8	29	18	0.6	0.3	acceptable
13	9	31	22	0.7	0.2	*improved
14	--	20	18	0.5	0.1	discarded
15	--	17	12	0.4	0.1	discarded
16	10	24	13	0.5	0.3	acceptable
17	11	32	18	0.7	0.4	acceptable

Table 5.2 shows that the researcher discarded items 5, 10, 14, and 15 because of their low power of discrimination, as a result, these items could not discriminate among good and poor test takes. Item 7 was discarded because its level of difficulty was too low. This means that the item was too difficult for the students to do. Item 6 did not meet the minimum criteria of level of difficulty and power of discrimination. Following is the result of item analysis of the Reading Passage 2.

Table 5.3 Results of Item Analysis of Reading Passage 2 "History of Pendulum"

Item(s)		High	Low	Level of	Power of	Remark
Pilot	Final	(N= 38)	(N=38)	Difficulty	Discrimination	
18-24	12-16	27	13	0.5	0.4	*improved
25	--	10	1	0.1	0.2	discarded
26	17	25	15	0.5	0.3	acceptable
27	--	18	13	0.4	0.1	discarded
28	18	32	18	0.7	0.4	acceptable
29	19	26	16	0.6	0.3	acceptable
30	20	27	16	0.6	0.3	acceptable
31	21	33	22	0.7	0.3	acceptable
32	22	27	16	0.6	0.3	acceptable
33	23	28	16	0.6	0.3	acceptable
34	--	14	10	0.3	0.1	discarded

Table 5.3 reveals that seven items out of fifteen were acceptable as good test items since they met the acceptable criteria for both level of difficulty and power of discrimination. From item 12 to item 16 needed some refinements. Item 25 was discarded because it was too difficult while items 27 and 34 had low power of discrimination. Table 5.4 below presents the results of item analysis of Reading Passage 3:

Table 5.4 Results of Item Analysis of Reading Passage 3 "What's a Healthy Weight?"

Item(s)		High	Low	Level of	Power of	Remark
Pilot	Final	(N= 38)	(N=38)	Difficulty	Discrimination	
35	24	32	17	0.6	0.4	acceptable
36	--	16	12	0.4	0.1	discarded
37	25	31	10	0.5	0.6	acceptable
38	26	32	18	0.7	0.4	acceptable
39	27	24	13	0.5	0.3	acceptable
40	--	26	21	0.6	0.1	discarded
41	28	33	20	0.7	0.3	acceptable
42-47	29-34	35	17	0.7	0.5	acceptable
48	35	27	17	0.6	0.3	acceptable
49	36	29	19	0.6	0.3	acceptable
50	37	31	20	0.7	0.3	acceptable
51	38	27	17	0.6	0.3	acceptable
52	39	28	21	0.6	0.2	*improved
53	--	14	10	0.3	0.1	discarded

Table 5.4 demonstrates that item 52 of this reading passage needed improvement because of its low power of discrimination though the acceptable criterion for the level of difficulty was met. Furthermore, the researcher decided to discard three items (36, 40, and 53) because of their extremely low discrimination power values.

Table 5.5 below reveals that eleven items were acceptable as good test items since they met the acceptable criteria for both level of difficulty and power of discrimination. No change was needed to be made to these items. Item 59 seemed too easy and was discarded since it could not discriminate good and poor test takers.

Table 5.5 Results of Item Analysis of Reading Passage 4 "Disc Brakes"

Item		High	Low	Level of	Power of	Remark
Pilot	Final	(N= 38)	(N=38)	Difficulty	Discrimination	
54	40	27	17	0.6	0.3	acceptable
55	41	32	19	0.7	0.3	acceptable
56	42	31	16	0.6	0.4	acceptable
57	43	26	14	0.5	0.3	acceptable
58	44	24	12	0.5	0.3	acceptable
59	--	30	25	0.7	0.1	discarded
60	45	35	21	0.7	0.4	acceptable
61	46	32	22	0.7	0.3	acceptable
62	47	35	24	0.8	0.3	acceptable
63	48	35	23	0.8	0.3	acceptable
64	49	37	24	0.8	0.3	acceptable
65	50	32	21	0.7	0.3	acceptable

.To sum up, the results of the item analysis revealed that out of 65 test items, 45 test items were accepted as good items; 5 items needed improvement or refinement whereas 15 items were discarded. The items which have been changed, modified, or refined were presented as follows:

Reading Passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving

Item 3: The activities that are involved in making people aware of a company's products. (Paragraph B)

Note: This item was quite ambiguous as the students had many right choices, so the researcher decided to add more information (in italic)

- The activities that are involved in making people aware of a company's products, *making sure that the products are available to be bought, etc.* (paragraph B)

Item 13: How does the hi-tech toilet measure human health?

Note: This item did not provide enough information, some explanations was added.

- How does the hi-tech toilet measure *the user's blood pressure, weight, body fat, and urine sugar level*?

Reading Passage Three: What's a Healthy Weight?"

Item 52: The Body mass index helps you to have an overview idea about your weight in _____ to your height

Note: This item had low power of discrimination (0.2), so the researcher decided to change the blank to:

- The Body mass index helps you to have an _____ idea about your weight in *relation* to your height

In conclusion, the item analysis of the test provided the researcher enough information to select good test items to test students' ability of reading comprehension. After the revision and refinement, the RPT-SoS was given to the same group of students in TNUT to check some problematic items. The students all agreed that the instructions were clearer and the test was easier since they finished the test in time and got higher score than the first time they had done. The final version of the test comprised of 50 items and ready to be administered to determine science-oriented students' ability of reading comprehension.

5.7 Test Reliability and Validity

The previous section has discussed the item analysis which is a very useful procedure to help the researcher judge and select good test items; however, Madsen (1983) indicated that good tests are also valid and reliable. Therefore, the researcher had to take the reliability and validity of the test into consideration. The process of

checking the validity and reliability of the test were to ensure that the scores obtained from the subjects are sufficiently reliable to determine their levels of language proficiency. What follows is how the process was carried out.

5.7.1 Test Reliability

According to Brown (1988), the reliability of the test is the extent to which the results can be considered consistent or stable, or the procedure produces similar results under constant conditions on all occasions as defined by Bachman (1990) and Bell (1999). There are two ways to estimate the reliability of the test equivalent-forms method, and internal-consistency methods (Fraenkel and Wallen, 1993; Frankfort-Nachmias Nachmias, 1996; Davies et al, 1999; and Bell, 1999). The equivalent-forms method needs 'test-retest' the same group of individuals during the same time period. The time between the 'test-retest' is normally limited to not more than two weeks. The internal-consistency methods (or the split-half method) which involves computing scores based on half of the items and scores based on the other half of the items, can be made on the basis of only a single administration of the test. Phillips (1971) stated that the internal-consistency method is a widespread approach to the assessment of reliability. Therefore, the researcher employed the internal-consistency method to estimate the reliability of the test for the present investigation. The reliability of the RPT-SoS test was .81 which was considered acceptable, and was higher than the acceptable criterion of .70 as suggested by Fraenkel and Wallen (1993).

5.7.2 Test Validity

Validity refers to "the appropriateness, meaningfulness, and usefulness of the specific inferences researchers make based on the data they collect" (Fraenkel and

Wallen 1993, p. 139). Therefore, a test is said to be valid to the extent that it measures accurately what it is intended or supposed to measure (Henning, 1987; Hughes, 1989; and Manstead and Semin, 2001). In addition, Mehrens and Lehmann (1991) and Raatz (1985) suggested that content validity is of most concern to the test constructor because it provides an important component in the validation of score interpretation. Castillo (1990) asserted that usually the first approach to establishing the validity of a test is through getting `experts', to judge whether the test consists of questions covering the areas being measured, and whether the test appears to measure what it supposes to measure. As a result, to validate the present RPT-SoS, the researcher has done the following steps:

1. A questionnaire was designed to validate content validity and face validity in terms of appropriateness of reading texts and test items in reading texts as well as test formats or methods provided in the test. This questionnaire was given to seven ‘experts’ (three are English native speakers and two are English teachers at TNUT and TUMP, and two PhD students at SUT).
2. 114 science-oriented students as the testees were also given a questionnaire which was designed to validate four aspects of the test included familiarity, difficulty, appropriacy of test items, and time provided for the whole test. As mentioned earlier, the questionnaire was administered the same time when the researcher piloted the test.

Tables 5.6 and 5.7 below show the results of the questionnaires obtained through the first group of respondents as both content validity and face validity.

Table 5.6 Appropriacy of Texts in the Test

Reading passage	Appropriate	Not at all appropriate
Reading passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving	5 (71.4%)	2 (28.6%)
Reading passage 2: History of Pendulum	6 (85.7%)	1 (14.3%)
Reading passage 3: What's a Healthy Weight?	7 (100%)	0 (0%)
Reading passage 4: Disc brakes	7 (100%)	0 (0%)

Table 5.6 revealed that all 4 reading passages were appropriate for the science-oriented students as the agreement among seven experts was from 85.7% to 100%. Reading passage 1 got the lowest agreement (71.4%), but it was acceptable. Table 5.7 below presents the appropriacy of task formats in the test provided by seven experts through the questionnaire.

Table 5.7 Appropriacy of Task Formats in the Test

Task formats	Experts' Opinion							Mean	Judgment
	Exp 1	Exp 2	Exp 3	Exp 4	Exp 5	Exp 6	Exp 7		
1. Choosing appropriate words, from the text	1	1	1	0	1	1	1	0.8	acceptable
2. Listing ideas from the text relevant to a given topic or concern	1	1	1	1	1	1	1	1.0	acceptable
3. Matching	1	1	1	1	1	1	1	1.0	acceptable
4. Finding specific information	1	1	1	1	1	1	1	1.0	acceptable
5. Filling word(s) in the blanks provided	1	1	1	1	0	0	1	0.7	acceptable
6. Multiple choices	0	0	0	1	1	1	1	0.5	acceptable
7. Short-answer questions, up to three words only	1	1	0	0	0	1	1	0.5	acceptable
8. Sorting events in order	1	1	1	1	1	1	1	1.0	acceptable
9. True/False	1	1	1	1	1	1	1	1.0	acceptable

Note: *1)* **Exp**. *stands for 'an expert' 2)* **1** *means 'valid'; and* **0** *'not at all valid'*

As can be seen from Table 5.7, all of the experts agreed that the tasks used in the test were familiar with the types of task the students had to do in their subject area.

However, two experts in TUMP reported that their students seldom practised those types of task (multiple choices, and short answer). But, in general, all the tasks provided in the test were acceptable.

Students as the testees in both the pre-piloting and piloting stages were also asked to complete a questionnaire for the feedback and comments about the test. The questionnaire contains 3 questions:

1. Question number 1: Students were asked to indicate from 1 (very easy) to 5 (very difficult) to show their opinion about the difficulty of the test;
2. Question number 2: Students were asked to express their opinion about the familiarity with the text by choosing Yes (familiar) ; or No (not familiar);
3. Question number 3: Students were asked to express their opinion about the familiarity with the test format or method by choosing Yes (familiar); or No (not familiar).

The results obtained through 114 questionnaires in the piloting stage are presented as follow:

Table 5.8 Test Difficulty (n=114)

Reading passage	Very Easy (1)	Easy (2)	Neither easy nor difficult (3)	Difficult (4)	Very difficult (5)
Reading passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving	5 (4.4%)	12 (10.5%)	31 (27.1%)	25 (21.9%)	41 (35.9%)
Reading passage 2: History of Pendulum	12 (10.5%)	7 (6.1%)	21 (18.4%)	31 (27.1%)	43 (37.7%)
Reading passage 3: What's a Healthy Weight?	6 (5.2%)	21 (18.4%)	25 (21.9%)	39 (34.2%)	23 (20.1%)
Reading passage 4: Disc brakes	11 (9.6%)	13 (11.4%)	42 (36.8%)	19 (16.6%)	29 (25.4%)

In light of the test difficulty, Table 5.8 above shows that of the four reading passages, reading passage 2 was reported to be the most difficult, reading passages 1 and 3 were moderately difficult, and reading passage 4 was the least difficult.

Regarding the familiarity of the text, as can been seen in Table 5.9 below, students reported that reading passage 4 was the most familiar to them (67.5%) while reading passage 2 was the least familiar (27.1%). This might be because the subjects who major in Health Science were less than the subjects in Science and Technology major.

Table 5.9 Text Familiarity (n=114)

Reading passage	Familiar	Not familiar
Reading passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving	52 (45.6%)	62 (54.4%)
Reading passage 2: History of Pendulum	31 (27.1%)	83 (72.9%)
Reading passage 3: What's a Healthy Weight?	43 (37.7%)	71 (62.3%)
Reading passage 4: Disc brakes	77 (67.5%)	37 (32.5%)

In respect of test formats or methods employed for the test, the results from Table 5.10 below reveals that most of the students as the testees reported being familiar with test formats or methods. '*Choosing appropriate words, from the text'*, '*Listing ideas from the text relevant to a given topic or concern*', and '*True/False*' were the most familiar to them.

Table 5.10 Test Format Familiarity

Test format/Method	Familiar	Not familiar
1.Choosing appropriate words, from the text	83 (72.9%)	31 (27.1%)
2.Listing ideas from the text relevant to a given topic	79 (69.3%)	35 (30.7%)
3.Matching	67 (59.8%)	47 (41.2%)
4.Finding specific information	72 (63.2%)	42 (36.8%)
5.Filling word(s) in the blanks provided	50 (43.9%)	64 (56.1%)
6.Multiple choices	41 (36%)	73 (64%)
7.Short-answer questions, up to three words only	37 (32.5%)	77 (67.5%)
8.Sorting events in order	69 (60.6%)	45 (39.4%)
9.True/False	75 (65.8%)	39 (34.2%)

In conclusion, the RPT-SoS for the present investigation met the requirements in terms of test reliability and validity; therefore, it is considered to be valid to determine students' level of language proficiency.

5.8 Students Levels of Language Proficiency

As mentioned earlier, the researcher employed the 'third' technique to determine the science-oriented university students' levels of language proficiency for the present investigation. In doing so, the scores obtained through the RPT-SoS were grouped as the 'top third' scoring, 'middle third', and the 'bottom third' scoring. The total score of the RPT-SoS of the present investigation is 50. Therefore, any students whose test scores fell in the top third (scores from 35-50) were considered as 'high-proficiency', middle third (with scores between 18-34) as 'moderate-proficiency', and the 'bottom' third (with scores ranging from 0-17) as 'low-proficiency'. This could ascertain an individual student's level of proficiency with respect to a well-defined behavioural domain, or skill and content which he or she displayed when called on to do so in a testing situation (Hudson and Lynch, 1984). Table 5.11 below

presents the students' scores and their levels of language proficiency for the present investigation.

Table 5.11 Summary of the RPT-SoS scores and levels of language proficiency of the research subjects

Level of proficiency	N	Min	Max	Mean	Std. Deviation
High	52 (8.5%)	35	49	39.32	4.10
Moderate	251 (40.8%)	18	34	26.48	4.30
Low	312 (50.7%)	3	17	12.97	3.36
Total	**615 (100%)**	**3**	**49**	**26.25**	**3.92**

Note: *The highest possible score was 50.*

As can be seen in Table 5.11, the language proficiency levels of 615 science-oriented students for the present investigation were not in a very well-balanced proportion. The 'low proficiency' level was the largest proportion of students' language proficiency (50.7%), followed by the 'moderate proficiency' level. The 'high proficiency' students represented only 8.5 per-cent of the sample.

To sum up, the RPT-SoS for the present investigation was particularly designed to determine the levels of language proficiency of science-oriented students in 6 universities in the north of Vietnam. The test was administered to 615 students in May 2011. The students' levels of language proficiency were then determined based on test scores obtained.

5.9 Summary

In this chapter, the researcher has described how the RPT-SoS for the present investigation was constructed. Firstly, the researcher introduced the theory of test and language testing, and then the RPT-SoS construction procedures. The pre-piloting, piloting, and post-piloting stages have also been carried out to provide the researcher with some valuable insights and an opportunity to improve the test items to meet the acceptable criteria of the level of difficulty and power of discrimination, the reliability and validity of the test. Finally, science-oriented university students' levels of language proficiency were demonstrated. The next chapter will present data analysis for the frequency of language learning strategy use.

CHAPTER 6

DATA ANALYSIS FOR LANGUAGE LEARNING STRATEGY USE (I)

6.1 Introduction and Purpose of the Chapter

This chapter aims to describe the research results of the present investigation, i.e. overall use of language learning strategies, use of language learning strategies in the two main categories, and use of individual strategies by 615 science-oriented university students based on the holistic mean scores obtained from the researcher-constructed language learning strategy questionnaire. It should be noted that this chapter does not take significant variations in frequency of students' reported use of language learning strategies into consideration.

As mentioned earlier in Chapter 2, factors affecting learners' language learning strategy use including motivation, gender, cultural background, attitudes and beliefs, type of task, age, learning style, and tolerance of ambiguity were investigated by various researchers (e.g. Bialystok and Fröhlich, 1978; Bialystok, 1981; Hoàng, 1999; Sadighi and Zarafshan, 2006; Bernat and Lloyd, 2007; and Kyoung and Oxford, 2008). Among these factors, learners' level of language proficiency, motivation, learning style, and gender have been shown to have a strong effect on learners' use of different types of strategies, and have received more attention from the researchers than other variables. As a result, the researcher for the present investigation focused

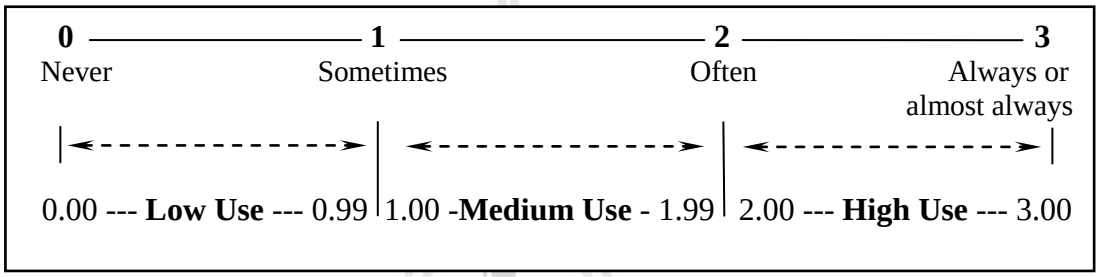
on the relationship between students' use of learning strategies and gender of students, major fields of study, attitude toward language learning, 'perceived' class size, and their language proficiency levels.

For the present investigation, language learning strategies have been defined as behaviours or thought processes whether observable or unobservable, or both, that science-oriented university students generated and made use of to enhance their specific skills or general knowledge in learning the English language. Therefore, strategy use consistent with the above working definitions was accordingly determined. Firstly, the frequency of overall use of learning strategies reported by 615 science-oriented university students will be explored. This is followed by the frequency of learning strategy use in the two main categories, which are Specific Language Skills Enhancement (SSE), and General Language Knowledge Enhancement (GKE). Finally, the frequency of students' reported use of 54 individual learning strategies will be examined and analyzed.

6.2 Language Learning Strategy Use Reported by 615 Science-oriented University Students Learning EFL in the North of Vietnam

In this section, simple statistical methods were employed in the data analysis. Then the description of students' reported frequency of strategy use in 3 different levels. No significant variation patterns of students' use of language learning strategies were described at this stage. In doing so, the frequency of students' strategy use has been categorized as 'high', 'medium', or 'low' use. This is organized by the responses of the students obtained though the strategy questionnaire in which frequency of strategy use was measured on a four-point rating scale, ranging from

'never' which is valued as 0, 'sometimes' valued as 1, 'often' valued as 2, and 'always or almost always' valued as 3. So, the average value of frequency of strategy use could be valued from 0.00 to 3.00, with 1.50 being the mid-point of the minimum and the maximum values. The mean frequency score of strategy use of any categories or items valued from 0.00 to 0.99 was indicated as 'low use', from 1.00-1.99 as 'medium use', and from 2.00-3.00 as 'high use'. Figure 6.1 below demonstrates the applied measure.



(*Source: Adapted from Intaraprasert 2000, p. 167*)

Figure 6.1 The Measure of High, Medium, and Low Frequency of Strategy Use

6.2.1 Frequency of Students' Overall Strategy Use

Table 6.1 below demonstrates the result of the holistic mean frequency score across the language learning strategy questionnaire administered to 615 science-oriented university students studying EFL in the north of Vietnam.

Table 6.1 Frequency of Students' Reported Overall Strategy Use

	N	Mean	Std. Deviation	Frequency Category
Students' Reported Overall Strategy Use	615	1.34	.38	Medium use

As can be seen in Table 6.1, the mean frequency score of students' reported overall strategy use is 1.34. This means that these 615 science-oriented university students, as the whole, reported employing language learning strategies with moderate

frequency when they had to deal with language learning. However, certain language learning strategies, which fall into the ‘high use’ and ‘low use’ categories reported by these students will be presented later in this chapter.

6.2.2 Frequency of Use of Strategies in the Two Main Categories (SSE and GKE)

The language learning strategies in the present investigation have been grouped under two main categories as previously presented in Chapter 4 which were Specific Language Skills Enhancement (SSE) and General Language Knowledge Enhancement (GKE). What follow are the frequency of LLS use in the two categories, the standard deviation, and the mean scores.

Table 6.2 Frequency of Use of Strategies in the SSE and GKE Categories

Strategy Main Category	N	Mean	Std. Deviation	Frequency Category
Specific Language Skills Enhancement (SSE)	615	1.35	.42	Medium use
General Language Knowledge Enhancement (GKE)	615	1.26	.33	Medium use

Table 6.2 above reveals that 615 science-oriented university students reported medium frequency of LLS use in two main categories. In comparing the mean frequency score between the two categories, students’ reported employing strategies to enhance the specific language skills ($\bar{X}$ =1.35) more frequently than those in the general language knowledge category ($\bar{X}$ =1.26). This implies that students paid more attention to enhance their specific language skills, i.e. listening, speaking, reading, and writing than to enhance their general knowledge of the English language.

6.2.3 Frequency of Use of Individual Language Learning Strategy

The frequency of language learning strategy use shown in Tables 6.3 and 6.4 has provided us with an overall picture of science-oriented students' strategy use in the two main categories. This section focuses on 54 individual language learning strategies (LLSs) which 615 science-oriented students reported employing to enhance their specific skills and their general language knowledge in learning the English language. Tables 6.3 - 6.9 demonstrate the 43 individual strategies to enhance core language skills, i.e. speaking, listening, reading and writing, and supportive language skills, i.e. vocabulary, pronunciation, and grammar. Table 6.10 and Table 6.11 present 11 strategies reported being employed by 615 science-oriented students to enhance their general language knowledge. In order to make it easier to see the whole picture of students' reported frequency of each individual language learning strategy use, these strategies are presented in order of their mean frequency scores, ranging from the highest to the lowest. This may enable us to see a clearer picture of the strategies which have been reported the most and least frequently. The higher mean frequency score of a strategy use implies that students reported employing that strategy more frequently than those with lower mean frequency scores.

6.2.3.1 Frequency of Use of Individual Strategy to Enhance Listening Skill

Table 6.3 below presents the frequency of use of six individual strategies which were reported being used by 615 science-oriented university students to enhance their listening skill.

Table 6.3 Frequency of Use of Individual Strategy to Enhance Listening Skill

Strategies for Listening Skill Enhancement	Mean	S.D.	Frequency Category
SLSE1: Listening to English songs	2.14	.94	High use
SLSE6: Listening to the recording repetitively	1.80	.99	Medium use
SLSE3: Watching television programs in English to help one familiar with the accents, tone of voice, and intonations	1.77	.96	Medium use
SLSE4: Attending extra classes where native English speakers teach the English language	1.49	.91	Medium use
SLSE5: Seeking an opportunity to listen to the English language	1.35	.79	Medium use
SLSE2: Listening to radio programs in English	1.20	.81	Medium use

As can be seen in Table 6.3 above, six strategies have been reported being used to enhance the listening skill, in which the students reported employing 'listening to English songs' strategy (SLSE1) at the high frequency level ($\bar{X}$ =2.14). This is followed by 5 strategies which were reported being employed at the moderate level of frequency. As a whole, we can see that these strategies are non-interactive listening strategies. Students enhanced their listening themselves; they practiced listening and did not have to respond to what they listened to, such as, 'listening to the recording repetitively', 'watching television programs', or 'listening to radio programs'.

6.2.3.2 Frequency of Use of Individual Strategy to Enhance Speaking Skill

Table 6.4 below shows the students reported 'seeking an opportunity to communicate with foreigners or native speakers of English' (SSSE3) to enhance their speaking skill at the high level of frequency ($\bar{X}$ = 2.01). However, two strategies that

students reported employing at the low frequency level were ‘asking an interlocutor to correct a mistake when speaking English’ (SSSE9) and ‘doing a part-time job at tour offices, hotels or restaurants’ (SSSE4). The rest, were reported being employed at the medium use.

Table 6.4 Frequency of Use of Individual Strategy to Enhance Speaking Skill

Strategies for Speaking Skill Enhancement	Mean	S.D.	Frequency Category
SSSE3: Seeking an opportunity to communicate with foreigners or native speakers of English	2.01	1.0	High use
SSSE1: Participating in discussions in groups or classes, or clubs	1.49	.97	Medium use
SSSE8: Encouraging oneself to speak English even when one is afraid of making a mistake	1.49	1.0	Medium use
SSSE5: Taking an extra (speaking) class at a language centre	1.31	.97	Medium use
SSSE6: Talking to oneself	1.25	.92	Medium use
SSSE7: Starting conversations with other people in English	1.22	.92	Medium use
SSSE2: Self-practising with non-course books	1.20	.95	Medium use
SSSE9: Asking an interlocutor to correct a mistake when speaking English	.96	.88	Low use
SSSE4: Doing a part-time job at tour offices, hotels or restaurants	.53	.81	Low use

As a whole, in comparison with the other skills in terms of the number of strategies, students reported employing the largest number of strategies to enhance their speaking skill (9 strategies). This may reflect the communicative approach in teaching English which is being implemented in most of the English classes in Vietnam (MOET, 2010). Students are encouraged to speak as much as possible.

However, except for ‘participating in discussion in classes’ (SSSE1), all the reported strategies were out-of-class strategies. In other words, students did not employ strategies to enhance their speaking skill in classroom; they employed or found an opportunity to employ strategies to enhance themselves outside the classroom setting.

6.2.3.3 Frequency of Use of Individual Strategy to Enhance Reading Skill

Strategies for reading skill enhancement (SRSE) comprise five individual strategies as presented in Table 6.5 below:

Table 6.5 Frequency of Use of Individual Strategy to Enhance Reading Skill

Strategies for Reading Skill Enhancement	N	Mean	S.D.	Frequency Category
SRSE3: Reading short stories or funny stories in English	615	1.81	1.1	Medium use
SRSE1: Reading English brochures, leaflets or billboards	615	1.76	.97	Medium use
SRSE5: Looking for opportunities to read as much as possible in English	615	1.49	.92	Medium use
SRSE2: Reading materials of one’s major in English language	615	1.26	.88	Medium use
SRSE4: Reading instructions or manuals in English	615	1.08	.67	Medium use

As demonstrated in Table 6.5, all of the five language learning strategies for reading skill enhancement were reported being employed at the medium frequency level; however, the range of the mean scores was from 1.81 to 1.08. This reveals that students reported employing strategy to enhance their reading skill by ‘reading short stories or funny stories in English’ (NRSE3) or ‘reading English brochures, leaflets or billboards’ (SRSE1) more frequently than ‘reading instructions or manuals in English’ (SRSE4) even though these strategies were reported moderate use.

6.2.3.4 Frequency of Use of Individual Strategy to Enhance Writing Skill

Table 6.6 below shows the frequency of use of strategies to enhance writing skill by 615 science-oriented students. Out of the six strategies, students reported employing 'practising writing sentences in English' (SWSE2) at the high frequency level ($\overline{X}$ =2.03). Four strategies were reported being employed at the medium frequency level. Taking a closer look, we can see that students reported 'doing extra writing exercises from non-course books' (SWSE5) more frequently than 'seeking assistance from other people, such as teachers or friends' (SWSE4). This is followed by 'comparing one's writing with friends'' (SWSE3) and 'writing e-mail, diary, notes, messages, letters, or reports in English' (SWSE1). 'Having extra writing tutorials' (SWSE6) was reported being employed at the low frequency level ($\overline{X}$ =.80).

Table 6.6 Frequency of Use of Individual Strategy to Enhance Writing Skill

Strategies for Writing Skill Enhancement	Mean	S.D.	Frequency Category
SWSE2: Practising writing sentences in English	2.03	1.0	High use
SWSE5: Doing extra writing exercises from non-course books	1.62	.84	Medium use
SWSE4: Seeking assistance from other people, such as teachers or friends	1.33	.95	Medium use
SWSE3: Comparing one's writing with friends'	1.26	.91	Medium use
SWSE1: Writing e-mail, diary, notes, messages, letters, or reports in English	1.15	.83	Medium use
SWSE6: Having extra writing tutorials	.80	.74	Low use

6.2.3.5 Frequency of Use of Individual Strategy to Enhance Pronunciation

In respect of strategies for enhancing students' pronunciation, Table 6.7 below shows that three strategies were reported being employed at the moderate frequency of use, while the others were reported at the low frequency of use. To be specific, students reported employing SPE3: 'using a dictionary to check one's pronunciation' to enhance their pronunciation more frequently ($\overline{X}$ =1.68) than SPE1: 'imitating native speakers' ($\overline{X}$ =1.64), and SPE4: 'asking friends or teachers to help to check the pronunciation' ($\overline{X}$ =1.14). Students reported employing SPE2: 'checking one's recorded pronunciation against the recordings', and SPE2: 'practising pronunciation in front of the mirror' at the moderate frequency of use with the mean scores of .95 and .73 respectively.

Table 6.7 Frequency of Use of Individual Strategy to Enhance Pronunciation

Strategies for Pronunciation Enhancement	Mean	S.D.	Frequency Category
SPE3: Using a dictionary to check one's pronunciation	1.68	1.09	Medium use
SPE1: Imitating native speakers	1.46	.94	Medium use
SPE4: Asking friends or teachers to help check the pronunciation	1.14	.83	Medium use
SPE2: Checking one's recorded pronunciation against the recordings	.95	.84	Low use
SPE5: Practising pronunciation in front of the mirror	.73	.80	Low use

6.2.3.6 Frequency of Use of Individual Strategy to Enhance Vocabulary

In terms of strategies to enhance vocabulary, Table 6.8 reveals that two strategies were reported being employed as 'high use', three strategies as 'medium use', and two strategies as 'low use'. It is evident that almost all science-oriented students enhanced their vocabulary by 'translating English words into Vietnamese or Vietnamese words into English' (SVE4), and 'memorizing words in English' (SVE1) more frequently than the other strategies. On the contrary, students reported low frequency of use of SVE3: 'using stickers or flash cards' ($\overline{X}$ =.88), and SVE6: 'using new vocabulary items to converse or to compete with peers' ($\overline{X}$ =.79).

Table 6.8 Frequency of Use of Individual Strategy to Enhance Vocabulary

Strategies for Vocabulary Enhancement	Mean	S.D.	Frequency Category
SVE4: Translating English words into Vietnamese or Vietnamese words into English	2.04	.94	High use
SVE1: Memorising words in English	2.02	.88	High use
SVE5: Grouping new vocabulary items according to their similarity in meanings or spellings	1.13	.97	Medium use
SVE7: Playing word games	1.10	.90	Medium use
SVE2: Learning words' formations or words' roots	1.07	.81	Medium use
SVE3: Using stickers or flash cards	.88	.86	Low use
SVE6: Using new vocabulary items to converse or to compete with peers	.79	.87	Low use

6.2.3.7 Frequency of Use of Individuals Strategies to Enhance Grammar

In Table 6.9 below, 5 individual learning strategies were reported being employed by 615 science-oriented students to enhance their grammar. Students' reported employing these strategies which mainly involved in classroom learning purposes, whereas some were to enhance grammar after class. 'Doing extra grammar exercises from non-course book after class' strategy was reported being employed at the high frequency level. Two strategies including 'asking teachers for clarification' and 'taking notes on grammar points' were reported being employed at the moderate frequency level. Students reported low frequency of use of 'linking newly-learnt grammar structures with previously-learnt ones' ($\overline{X}$ =.96) and 'having extra grammar tutorials' ($\overline{X}$ =.70).

Table 6.9: Frequency of Use of Individuals Strategies to Enhance Grammar

Strategies for Grammar Enhancement	Mean	S.D.	Frequency Category
SGE1: Doing extra grammar exercises from non-course books	2.05	.96	High use
SGE4: Asking the teacher for clarification when appropriate	1.49	.91	Medium use
SGE2: Taking notes on grammar points	1.44	1.0	Medium use
SGE3: Linking newly-learnt grammar structures with previously-learnt ones	.96	.88	Low use
SGE5: Having extra grammar tutorials	.70	.83	Low use

6.2.3.8 Frequency of Use of Individual Media Reliance Strategy to Enhance General Language Knowledge

Table 6.10 below shows five media reliance strategies that science-oriented students reported employing to enhance their general language knowledge.

Table 6.10 Frequency of Use of Individual Media Reliance Strategy to Enhance General Language Knowledge

Media Reliance Strategies for General Language Knowledge Enhancement	Mean	S.D.	Frequency Category
MRS3: Making use of online resources, such as e-library, online dictionary or Google Translate	2.13	.93	High use
MRS1: Using a mobile phone or a tape recorder or a compact disc	2.06	.85	High use
MRS5: Self-practising with commercial software	1.95	.99	Medium use
MRS2: Joining a forum or a blog or a chat room	1.72	1.0	Medium use
MRS4: Singing '*karaoke*' in English	.60	.57	Low use

As can be seen in Table 6.10, students reported high use of two strategies which were 'making use of online resources, such as e-library, online dictionary or Google Translate' ($\bar{X}$ =2.13) and 'using a mobile phone or a tape recorder or a compact disc' ($\bar{X}$ =2.06). This is followed by two strategies which were reported being employed at the moderate frequency level: 'self-practising with commercial software' ($\bar{X}$ =1.95) and 'joining a forum or a blog or a chat room' ($\bar{X}$ =1.72). 'Singing *karaoke* in English' was reported being used at the low frequency ($\bar{X}$ =.60).

6.2.3.9 Frequency of Use of Individual Non-media Reliance Strategy to Enhance General Language Knowledge

The results presented in Table 6.11 below show that none of the language learning strategies were reported being used at the high frequency level, three strategies at the moderate frequency level. These strategies are 'creating English learning atmosphere for oneself' (NRS1), 'asking teachers how to learn English effectively' (NRS3), and 'trying to find as many ways as one can to use English' (NRS2). However, three learning strategies which students reported low frequency of use include: 'practicing general English with friends' (NRS5), 'noticing one's English mistakes and use that information' (NRS6), and 'trying to learn about the culture of native English speakers' (NRS4).

Table 6.11 Frequency of Use of Individual Non-media Reliance Strategy to Enhance General Language Knowledge

Non-media Reliance Strategies for General Language Knowledge Enhancement	Mean	S.D.	Frequency Category
NRS1: Creating English learning atmosphere for oneself	1.13	.76	Medium use
NRS3: Asking teachers how to learn English effectively	1.10	.81	Medium use
NRS2: Trying to find as many ways as one can to use English	1.02	.85	Medium use
NRS5: Practicing general English with friends	.91	.81	Low use
NRS6: Noticing one's English mistakes and use that information	.83	.69	Low use
NRS4: Trying to learn about the culture of native English speakers	.49	.65	Low use

In sum, frequency of use of 54 individual strategies was reported being employed by 615 science-oriented university students has been presented. Regarding the strategies to enhance core language skills, students reported using strategies to

enhance their listening skill more frequently than the other skills. It appears that even they are science-oriented students (more reading required) and they are studying in a communicative-oriented classroom environment (more speaking required), they tended to enhance their listening more often. This can be implied that students felt easier to employ strategies to enhance their listening, they did not need any assistance from their teachers or friends like enhancing others skills, i.e. writing or reading skill, or they did not need partners or interlocutors to practise, i.e. speaking skill.

In terms of supportive language skills, high frequency of use of strategies to enhance grammar and vocabulary was reported. It is evident that students in the north of Vietnam are grammar-oriented although they were encouraged to speak more and pronounce like native English speakers. This reflects the nature of Vietnamese learners in learning the English language.

Regarding strategies to enhance students' general language knowledge, science-oriented in the north of Vietnam tended to rely on media facilities. They made use of the Internet resources, audio-visual devices, and software to learn the English language. This is consistent with the common trend in learning a foreign language in the world nowadays.

6.3 Summary

This chapter has demonstrated frequency of language learning strategy use at 3 different levels reported by 615 science-oriented university students in the north of Vietnam. What follows is a summary of the highlights of the findings of the present investigation.

1. In terms of overall strategy use, 615 science-oriented university students in the north of Vietnam reported employing language learning strategies at the moderate frequency level.
2. Students reported employing strategies at the medium frequency level of use in both two categories; however, they reported using strategies to enhance their specific language skills slightly more frequently than those to enhance their general language knowledge.
3. Regarding strategies at individual level, 8 out of 54 strategies were reported being employed at the high frequency level, 33 strategies were at the medium frequency level, and 13 strategies were at the low frequency level.
4. Students reported employing out-of-class strategies more frequently than classroom-related strategies, i.e. self-studying, creating oneself opportunities to enhance their English language …

In this chapter, students' reported use of learning strategies as a whole, regardless of their gender, major fields of study, 'perceived' class size, attitude toward language learning, and proficiency levels has been described. Chapter 7 will present another perspective on the data analysis concerning the five independent variables in the present investigation, namely gender of students, major fields of study, 'perceived' class size, attitude toward language learning, and language proficiency levels.

CHAPTER 7

DATA ANALYSIS FOR

LANGUAGE LEARNING STRATEGY USE (II)

7.1 Introduction and Purpose of the Chapter

Chapter 6 has examined the use of language learning strategies in three different levels: overall strategy use, use of strategies in the two main categories, and use of the fifty-four individual strategies. This chapter examines significant variations and patterns of variation in frequency of language learning strategy use at each of the three different levels by 615 science-oriented university students for their language learning in relation to the five examined variables. The primary purpose of this chapter is to investigate the relationship between the LLS use of 615 science-oriented students and the five variables, namely:

1. Gender of students (male and female),
2. Fields of study (Science and Technology and Health Science),
3. Students' perception of English class size (large, optimum, and small),
4. Students' attitude toward English language learning (positive and negative), and
5. Students' language proficiency levels (high, moderate, and low)

In order to present the results of data analysis in this chapter, variations in frequency of students' overall reported language learning strategy use according to

the five variables will be presented first. This is followed by the variation in frequency of language learning strategy use in the two main categories: 1) strategies for specific language skills enhancement (SSE); and 2) strategies for general language knowledge enhancement (GKE) will be presented. Finally, an examination of individual language learning strategy use in relation to the five variables will be presented. Figure 7.1 below shows a summary of the analysis of variation in frequency of different levels of strategy use in this chapter.

Level 1:	Overall Reported Strategy Use
Level 2:	Use of Strategy in the Two Main Categories (SSE and GKE)
Level 3:	Use of Individual Strategy

Figure 7.1 Analysis of Variation in Frequency of Different Levels of Strategy Use

The main data analyses carried out for this section were an analysis of variance (ANOVA), and Chi-square tests with an assistance of the Statistical Package for the Social Sciences (SPSS) as follows:

1. An analysis of variance (ANOVA) was used to determine patterns of variation in students' overall reported strategy use, and use of strategies in the two main categories, in relation to the five independent variables. If a significant overall difference has been found as the results of ANOVA, among students' perception of their class size, and students' levels of language proficiency, the post-hoc Scheffé test was then used to pinpoint which pairs of means contributed to the overall difference.

2. The Chi-square (χ^2) tests were used to check and determine the significant variation patterns in frequency of students' reported strategy use at the individual item level in association with students' gender; major field of study; 'perceived ' class size; attitude toward language learning; and level of language proficiency. These tests were used to compare the actual frequencies with which students gave different responses on the 4-point rating scale, a method of analysis closer to the raw data than comparisons based on average responses for each item. For the present investigation, the responses of 0 and 1 ('Never' and 'Sometimes') were consolidated into the 'low strategy use' category whereas the responses of 2 and 3 ('Often' and 'Always or almost always') were consolidated into the "high strategy use" category. The purpose of consolidating the four response levels into two categories was to obtain cell sizes with expected values high enough to ensure a valid analysis (Green and Oxford, 1995). A level of significant of .01 or .05 was adopted for the present investigation as suggested by Rubin and Babbie (2011). That is, for example, at the .05 level, there is a 5% chance that the result is not significant or 95% confident that there is a significant variation in frequency of students' reported strategy use at the individual item level in association with the five variables.

7.2 Variation in Students' Overall Reported Strategy Use

The results of the first level from the ANOVA are summarized in Table 7.1 below. This statistical method demonstrates significant variation according to the five variables, i.e. gender, fields of study, 'perceived' class size, attitude toward language learning, and levels of language proficiency. The table displays the variables, mean

frequency score of strategy use (Mean), standard deviation (S.D.), Significance Level (Sig. Level), and Pattern of Variation in frequency of strategy use (if exists).

The results from the analysis of variance (ANOVA) shown in Table 7.1 below reveal that the frequency of students' overall strategy use varied significantly according to gender, and levels of language proficiency ($p < .01$).

Table 7.1 A Summary of Variation in Frequency of Students' Overall Reported Strategy Use

Major	Sci. & Tech (n=409)		Health Sci. (n=206)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
Overall Strategy	1.34	.39	1.32	.36	N.S	---
Gender	Male (n=385)		Female (n=285)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
Overall Strategy	1.30	.38	1.39	.38	p<.01	Female>Male
Attitude toward Language Learning	Positive (n=501)		Negative (n=114)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
Overall Strategy	1.33	.38	1.36	.40	N.S	---

'Perceived' Class Size	Large (n=112)		Optimum (n=423)		Small (n=80)		Comments	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
Overall Strategy	1.39	.39	1.33	.38	1.30	.36	N.S	---

Language Proficiency Level	High (n=52)		Moderate (n=251)		Low (n=312)		Comments	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
Overall Strategy	2.10	.14	1.57	.16	1.02	.14	p<.01	Hi> Mod>Lo

Regarding the students' gender, as can be seen in Table 7.1, the result from ANOVA shows a significant difference between male and female students. The mean frequency scores of female and male students were 1.39 and 1.30 respectively. This implies that in the overall use of learning strategies, female students reported employing language learning strategies significantly more frequently than did their male counterparts.

In terms of the student's level of language proficiency, as demonstrated earlier in Section 5.8 (Chapter 5), students' language proficiency levels were determined based on the scores obtained through the researcher-constructed reading proficiency test for science-oriented students (RPT-SoS), the post-hoc Scheffé test results showed significant variations in the overall strategy use among students with 'high', 'moderate', and 'low' proficiency levels. The mean frequency scores were 2.10 and 1.57 and 1.02 respectively. This indicates that the high proficiency students reported greater overall use of LLSs than both the 'moderate' and 'low' language proficiency students, and moderate proficiency students employed language learning strategies significantly more frequently than low proficiency students.

As can be seen in Table 7.1, the frequency of students' overall strategy use did not vary according to their major field of study, attitude toward language learning or their perception of their English class size. What follow are the ANOVA results of the use of strategies in the two main categories (SSE and GKE).

7.3 Variation in Frequency of Students' Use of Strategies in the SSE and GKE Categories According to the Five Variables

As indicated in Chapter 4, the language learning strategies for the present investigation have been grouped under the two main categories which are: Specific Language Skills Enhancement (SSE), and General Language Knowledge Enhancement (GKE). The ANOVA results showing variations in frequency of students' use of strategies in the two categories according to each of the five variables are presented in Tables 7.2 - 7.6 below.

7.3.1 Variation in Frequency of Students' Use of Strategies in the Two Main Categories According to Students' Major Fields of Study

The results of ANOVA in Table 7.2 below show no significant differences in frequency of use of strategies in the SSE and GKE categories according to major fields of study. It appears that students who study Science and Technology and Health Science tended to employ strategies in the two main categories at the similar frequency level. However, a closer look at the mean frequency scores of the reported strategy use by both Science and Technology and Health Science students in the SSE category was slightly more frequent than those in the GKE category.

Table 7.2 Variation in Frequency of Use of Strategies in the SSE and GKE Categories According to Major Fields of Study

Strategy Category	Sci. & Tech (n=409)		Health Sci. (n=206)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
SSE Category	1.36	.43	1.34	.40	N.S.	---
GKE Category	1.26	.34	1.27	.29	N.S.	---

7.3.2 Variation in Frequency of Students' Use of Strategies in the Two Main Categories According to Students' Gender

As seen in Table 7.3 below, based on the results of ANOVA, significant differences were found in the use of strategies in the two main categories according to students' gender. Female students reported employing the strategies in order to enhance both their specific language skills and their general language knowledge significantly more frequently than their male counterparts. The mean frequency scores of the females in two main categories were 1.41 and 1.31, while those of the males were 1.32 and 1.24 respectively. In addition, the mean frequency scores also show that the use of strategies in the SSE category by both male and female students was slightly more frequent than those in the GKE category.

Table 7.3 Variation in Frequency of Use of Strategies in the SSE and GKE Categories According to Gender

Strategy Category	Male (n=409)		Female (n=206)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
SSE Category	1.32	.42	1.41	.41	p<.05	Female>Male
GKE Category	1.24	.32	1.31	.34	p<.05	Female>Male

7.3.3 Variation in Frequency of Students' Use of Strategies in the Two Main Categories According to Students' Attitude toward Language Learning

The results of ANOVA demonstrated in Table 7.4 below show no significant differences in employing strategies to enhance specific language skills as well as general language knowledge among students who held positive attitude and those who held negative attitude toward English language learning. However, a closer look at the mean frequency scores reveals that science-oriented students reported medium use of

strategies in both of the main categories, and students who held negative attitude reported employing strategies slightly more frequently than those with positive attitude.

Table 7.4 Variation in Frequency of Use of Strategies in the SSE and GKE Categories According to Attitude toward Language Learning

Strategy Category	Positive (n=501)		Negative (n=114)		Comments	
	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
SSE Category	1.35	.41	1.38	.43	N.S.	---
GKE Category	1.26	.32	1.27	.35	N.S.	---

7.3.4 Variation in Frequency of Students' Use of Strategies in the Two Main Categories According to Students' Perception of Their Class Size

Table 7.5 below shows variations in students' language learning strategy use in the two main categories: SSE and GKE categories, according to their perception of their English class size.

Table 7.5 Variation in Frequency of Use of Strategies in the SSE and GKE Categories According to 'Perceived' Class Size

Strategy Category	Large (n=112)		Optimum (n=423)		Small (n=80)		Comments	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
SSE Category	1.41	.43	1.35	.42	1.31	.39	N.S.	---
GKE Category	1.29	.34	1.26	.33	1.24	.31	N.S.	---

As can be seen in Table 7.5, the results of ANOVA show that there were no significant differences between students' perception of their English class size and their reported strategy use in the two categories. However, students perceiving their

class sizes differently reported a medium frequency of use of strategies in both categories, with the strategies to enhance specific language skills slightly more frequently than those to enhance general language knowledge. The mean frequency scores of the SSE category were 1.41, 1.35 and 1.31, and for the GKE were 1.29, 1.26, and 1.24 respectively.

7.3.5 Variation in Frequency of Students' Use of Strategies in the Two Main Categories According to Students' Levels of Language Proficiency

The results from ANOVA shown in Table 7.6 below demonstrate variations in students' language learning strategy use in the two main categories: SSE and GKE according to their levels of language proficiency.

Table 7.6 Variation in Frequency of Use of Strategies in the SSE and GKE Categories According to Language Proficiency Level

Strategy Category	High (n=52)		Moderate (n=251)		Low (n=312)		Comments	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Sig. Level	Pattern of Variation
SSE Category	2.17	.16	1.62	.18	1.00	.15	p<.01	Hi.>Mod.>Lo
GKE Category	1.83	.26	1.38	.24	1.07	.23	p<.01	Hi.>Mod.>Lo

The results of ANOVA in Table 7.6 above reveal significant variation in the frequency of students' use of language learning strategies in the two main categories according to English language proficiency levels: 'high', 'moderate', and 'low'. The post-hoc Scheffé test results show significant differences among the students with different language proficiency levels. Those with high-proficiency level reported more frequent use of strategies than those with moderate and low-language proficiency levels in the two main categories.

In summary, as shown in Table 7.7 below, we can see an overall picture of students' reported frequency of strategy use according to the five variables in this level. Regarding the strategies to enhance specific language skills and general language knowledge, female students reported employing LLSs more frequently than male students. In addition, higher language proficiency students tended to employ strategies more frequently than lower language proficiency students. On the other hand, Science and Technology and Health Science students reported employing strategies more or less at the same level. There were no significant differences in employing language learning strategies regarding the attitude toward language learning. Furthermore, no significant differences in students' reported strategies employment were found according to their perception of their English class size. That is, whether they were in large, optimum or small class, they reported employing strategies in more or less the same way

Table 7.7 A Summary of Significant Variations in Frequency of Use of the SSE and GKE Categories According to the Five Variables

Strategy Category	Gender	Major	Attitude toward Language Learning	'Perceived Class size	Language Proficiency Levels
SSE Category	**YES**	**NO**	**NO**	**NO**	**YES**
GKE Category	**YES**	**NO**	**NO**	**NO**	**YES**

Note: A significant variation is specified with 'YES' and non-significant is labeled with N.S.

7.4 Variation in Use of Individual Learning Strategies

An analysis of variation in frequency of strategy use in three levels as mentioned in Section 7.1 has been presented in Sections 7.2, and 7.3 above. This section demonstrates the results of the Chi-square (χ^2) tests which were used to determine patterns of the significant variations in students' reported strategy use at the individual strategy item level. The main purpose of using the Chi-square tests was to examine all of the individual strategy items for significant variations by the five independent variables. The individual strategies were presented in this section in order of the percentage of students reporting high strategy use (2 and 3, or 'often' and 'almost always or always' in the language learning strategy questionnaire), ranking from highest to lowest, and the observed Chi-square (χ^2) values are used to demonstrate a significant of variation in each individual strategy. What follow are the patterns of significant variations in students' reported use of individual language learning strategies according to the five independent variables with a brief discussion of each of the variables.

7.4.1 Variation in Students' Reported Use of Individual Language Learning Strategies According to Major Field of Study

The results presented in Table 7.8 below indicate that students studying in the field of Science and Technology were different from those studying in the field of Health Science in using LLSs to enhance both their specific language skills and general language knowledge. The results of the Chi-square tests show significant variations in use of 11 strategies in relation to this variable. As a whole, of the 11 strategies for which significant differences were found, 5 strategies had a high reported frequency of use by more than fifty per cent of the students.

Table 7.8 Variation in Students' Individual Language Learning Strategy Use According to Major Field of Study

Individual Language Learning Strategy		% of high use (2 or 3)		Observed χ^2 p value
(Used more by Health Science students = 4 strategies)		**Sci. & Tech**	**Health Sci.**	
SLSE1:	Listening to English songs to enhance listening skill	76.3	83.5	$\chi^2 = 4.25$ p <.05
MRS3:	Making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge	70.9	80.6	$\chi^2 = 6.69$ p <.05
SSSE3:	Seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill	61.1	76.2	$\chi^2 = 13.93$ p <.01
SGE5:	Having extra grammar tutorials to enhance grammar skill	16.6	25.7	$\chi^2 = 7.18$ p <.05
(Used more by Science and Technology students = 7 strategies)		**Sci. & Tech**	**Health Sci.**	**Observed χ^2 p value**
SWSE2:	Practising writing sentences in English to enhance writing skill	73.8	63.6	$\chi^2 = 6.90$ p <.05
SWSE5:	Doing extra writing exercises from non-course books to enhance writing skill	67.7	59.7	$\chi^2 = 3.87$ p <.05
SLSE4:	Attending extra classes where native English speakers teach the English language to enhance listening skill	45.7	36.4	$\chi^2 = 4.86$ p <.05
SGE4:	Asking the teacher for clarification when appropriate to enhance grammar skill	45.7	36.4	$\chi^2 = 4.86$ p <.05
NRS2:	Trying to find as many ways as one can to use English to enhance general language knowledge	31.3	22.8	$\chi^2 = 4.83$ p <.05
NRS5:	Practicing general English with friends to enhance general language knowledge	27.9	18.4	$\chi^2 = 6.54$ p <.05
SWSE6:	Having extra writing tutorials to enhance writing skill	18.8	12.1	$\chi^2 = 4.43$ p <.05

To be specific, a significantly greater percentage of students studying Health Science than those studying Science and Technology reported employing 4 strategies at the high level. Examples are 'listening to English songs to enhance listening skill'

(SLSE1), ‘making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge’ (MRS3), ‘seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill’ (SSSE3), and ‘having extra grammar tutorials to enhance grammar skill’ (SGE5).

On the contrary, a significantly greater percentage of Science and Technology students than Health Science students reported employing 7 strategies at the high use level. Two strategies out of seven were reported being employed at high frequency of use of more than 50 per cent by the students. Although there was a significant variation in use of the other five strategies, less than half of the students reported employing them, i.e. 45.7 per cent ‘attending extra class where native English speakers teach the English language to enhance listening skill’ (SLSE4), 45.7 per cent ‘asking the teacher for clarification when appropriate to enhance grammar skill’ (SGE4), 31.3 per cent ‘trying to find as many ways as one can to use English to enhance general language knowledge’ (NRS2), 27.9 per cent ‘practicing general English with friends to enhance general language knowledge’ (NRS5), and 18.8 per cent ‘having extra writing tutorials to enhance writing skill’ (SWSE6).

7.4.2 Variation in Students' Reported Use of Individual Language Learning Strategies According to Gender

As can be seen previously in Sections 7.2, and 7.3, variations in frequency of students’ strategy use as a whole as well as LLS use in the SSE and GKE categories varied significantly according to this variable. In this section, the individual language learning strategies are examined regarding the variations in frequency as well as the patterns of variation of LLS use.

Table 7.9 below demonstrates the results of Chi-square (χ^2) tests with 9 LLSs which varied significantly in relation to the student's gender.

Table 7.9 Variation in Students' Individual Language learning strategy Use According to Gender

Individual Language learning strategy		% of high use (2 or 3)		Observed $\chi 2$
(Used more by Females = 9 strategies)		Female	Male	p value
SLSE1:	Listening to English songs to enhance listening skill	83.5	75.8	$\chi^2 = 5.00$ p <.05
MRS1:	Using a mobile phone or a tape recorder or a compact disc to enhance general language knowledge	82.2	75.1	$\chi^2 = 4.20$ p <.05
SWSE2:	Practising writing sentences in English to enhance writing skill	76.1	67	$\chi^2 = 5.69$ p <.05
SSSE3:	Seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill	74.3	61.3	$\chi^2 = 10.95$ p <.05
SGE2:	Taking notes on grammar points to enhance grammar skill	51.7	41.6	$\chi^2 = 6.02$ p <.05
SVE7:	Playing word games to enhance vocabulary	43	27.5	$\chi^2 = 15.58$ p <.01
SSSE9:	Asking an interlocutor to correct a mistake when speaking English to enhance speaking skill	30	20.3	$\chi^2 = 7.51$ p <.05
SGE3:	Linking newly-learned grammar structures with previously-learned ones to enhance grammar skill	30	20.3	$\chi^2 = 7.51$ p <.05
NRS4:	Trying to learn about the culture of native English speakers to enhance general language knowledge	9.6	5.2	$\chi^2 = 4.32$ p <.05

An overall picture of significant variations in strategy use at an individual strategy level is shown in Table 7.9 above. A significantly greater percentage of female than male students reported employing 9 learning strategies at the high use level. Of the 9 strategies, five strategies were reported being employed with high frequency of use by more than fifty per cent of the female students. Based on the results of the Chi-square tests, 83.5 per cent of the females reported 'listening to English songs to enhance their listening skill' (SLSE1), while 75.8 per cent of the

males reported doing that. Similarly, 82.2 per cent of the female students reported ‘using a mobile phone or a tape recorder or a compact disc to enhance their general language knowledge’ (MRS1), while 75.1 per cent of their male counterparts reported high frequency of this strategy. However, the results of the Chi-square test reveal that 4 strategies were reported being employed by less than fifty per cent of the students at the high use level, in which NRS4-‘trying to learn about the culture of native English speakers to enhance general language knowledge’ were employed by 9.6 per cent of the females and 5.2 per cent of the males. The findings of the present investigation also reveal that male students did not report higher frequency of use of any language learning strategies than did female students.

7.4.3 Variation in Students' Reported Use of Individual Learning Strategies According to Attitude toward Language Learning

There was no significant variation between students’ reported use of individual learning strategies according to their attitude toward language learning. The findings implied that whether the students held positive or negative attitude, they employed more or less the same strategies to enhance their specific language skills as well as their general language knowledge.

7.4.4 Variation in Students' Reported Use of Individual Learning Strategies According to ‘Perceived’ Class Size

In terms of students’ perceptions of their English class size, the Chi-square results show the significant differences in use of six strategies as presented in Table 7.10 below. As a whole, a significantly higher percentage of students perceiving their class size as large reported employing 4 strategies at the high use level than those perceiving their class smaller. Three-fourth of the strategies were reported high frequency of use by more than 50 per cent of the students who perceived their class as

large, i.e. ‘attending extra classes where native English speakers teach the English language to enhance listening skill’ (SLSE4), ‘practising writing sentences in English to enhance writing skill’ (SWSE2), and ‘asking the teacher for clarification when appropriate to enhance grammar skill’ (SGE4).

Table 7.10 Variation in Students’ Individual Language Learning Strategy Use According to ‘Perceived’ Class Size

Individual Language Learning Strategy		% of high use (2 or 3)			Observed χ^2 p value
(Used more by students perceiving their class size as large = 4 strategies)		**Lrg.**	**Opt.**	**Sml.**	
SWSE2:	Practising writing sentences in English to enhance writing skill	79.5	69.5	62.5	$\chi^2 = 6.97$ $p < .05$
SLSE4:	Attending extra classes where native English speakers teach the English language to enhance listening skill	53.6	39.5	43.8	$\chi^2 = 7.24$ $p < .05$
SGE4:	Asking the teacher for clarification when appropriate to enhance grammar skill	53.6	39.5	43.8	$\chi^2 = 7.24$ $p < .05$
NRS5:	Practicing general English with friends to enhance general language knowledge	34.8	21.5	27.5	$\chi^2 = 8.81$ $p < .05$
(Used more by students perceiving their class size as optimum = 2 strategies)		**Lrg.**	**Opt.**	**Sml.**	**p value**
MRS3:	Making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge	68.8	77.5	63.8	$\chi^2 = 8.75$ $p < .05$
SGE5:	Having extra grammar tutorials to enhance grammar skill	10.7	22	20	$\chi^2 = 7.12$ $p < .05$

Regarding the language learning strategies used more by students perceiving their class size as optimum at the high frequency level, more than half of the students reported ‘making use of online resources, such as e-library, online dictionary or Google Translate to enhance their general language knowledge’ (MRS3). On the contrary, only 22 per cent of students who perceived their class size as optimum reported ‘having extra grammar tutorials to enhance grammar skill’ (SGE5), while 20 per cent of students with small class perception, and 10.7 per cent of those with large class size perception reported doing so.

In sum, based on the Chi-square test results in Table 7.10, it appears that students' perception of their class size did not have strong relation to their choices of strategy use (6 out of the 54 reported strategies).

7.4.5 Variation in Students' Reported Use of Individual Learning Strategies According to Language Proficiency Levels

An overall picture of significant variations in strategy use at an individual strategy level according to language proficiency levels is shown in Table 7.11 below. The results of the Chi-square tests reveal that 53 out of 54 learning strategies across the strategy questionnaire varied significantly according to students' language proficiency levels. When compared with the other four variables, this variable has been found to have the strongest relation with students' choices of strategy use, with a greater proportion of significant variations in students' use of individual strategies across the strategy inventory found to be related to their proficiency levels.

In this section, the 53 individual strategies showing significant variation were classified as positive (high>moderate>low), or mixed (moderate>high>low or high>low>moderate) as suggested by Oxford and Green (1995). The results demonstrated that 51 individual strategies were in the positive pattern of variation, while only two individual strategies were in the mixed pattern of variation: moderate>high>low, and high>low>moderate. No individual strategy was found as the negative pattern of variation.

Table 7.11 Variation in Students' Individual Language Learning Strategy Use According to Language Proficiency Level

Individual Language Learning Strategy (Used more by High>Moderate>Low Proficiency Students = Positive 51 strategies)		% of high use (2 or 3)			Observed $\chi 2$ p value
		Hi.	Mod.	Lo.	
SLSE1:	Listening to English songs to enhance listening skill	100	90.4	60.7	$\chi^2 = 66.13$ p <.01
SSSE3:	Seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill	100	80.9	48.7	$\chi^2 = 93.29$ p <.01
SWSE2:	Practising writing sentences in English to enhance writing skill	100	81.3	56.7	$\chi^2 = 64.09$ p <.01
SVE1:	Memorising words in English to enhance vocabulary	100	87.6	51.9	$\chi^2 = 1.09$ p <.01
SVE4:	Translating English words into Vietnamese or Vietnamese words into English to enhance vocabulary	100	77.3	65.4	$\chi^2 = 30.87$ p <.01
SGE1:	Doing extra grammar exercises from non-course books to enhance grammar skill	100	80.5	60.3	$\chi^2 = 50.36$ p <.01
SRSE3:	Reading short stories or funny stories in English to enhance reading skill	98.1	79.7	42	$\chi^2 = 1.15$ p <.01
SLSE6:	Listening to the recording repetitively to enhance listening skill	98.1	90.8	45.8	$\chi^2 = 1.53$ p <.01
SSSE1:	Participating in discussions in groups or classes, or clubs to enhance speaking skill	98.1	80.5	13.5	$\chi^2 = 3.07$ p <.01
SSSE2:	Self-practising with non-course books to enhance speaking skill	96.2	61.4	13.8	$\chi^2 = 2.05$ p <.01
SRSE5:	Looking for opportunities to read as much as possible in English to enhance reading skill	92.3	70.5	14.4	$\chi^2 = 2.31$ p <.01
SWSE5:	Doing extra writing exercises from non-course books to enhance writing skill	90.4	82.1	47.1	$\chi^2 = 90.79$ p <.01
MRS1:	Using a mobile phone or a tape recorder or a compact disc to enhance general language knowledge	90.4	79.7	74	$\chi^2 = 7.81$ p <.01
SVE7:	Playing word games to enhance vocabulary	90.4	43.8	15.4	$\chi^2 = 1.33$ p <.01
SWSE3:	Comparing one's writing with friends' to enhance writing skill	88.5	49.8	16	$\chi^2 = 1.37$ p <.01

Table 7.11 (Cont.) Variation in Students' Individual Language Learning Strategy Use According to Language Proficiency Level

Individual Language Learning Strategy (Used more by High>Moderate>Low Proficiency Students = Positive 51 strategies)		% of high use (2 or 3) Hi.	Mod.	Lo.	Observed $\chi 2$ p value
SVE5:	Grouping new vocabulary items according to their similarity in meanings or spellings to enhance vocabulary	88.5	47.8	15.1	$\chi^2 = 1.38$ p <.01
SSSE9:	Asking an interlocutor to correct a mistake when speaking English to enhance speaking skill	86.5	37.5	2.6	$\chi^2 = 2.15$ p <.01
SRSE1:	Reading English brochures, leaflets or billboards to enhance reading skill	86.5	66.1	53.5	$\chi^2 = 24.41$ p <.01
SPE3:	Using a dictionary to check one's pronunciation to enhance pronunciation skill	86.5	65.3	42.9	$\chi^2 = 50.06$ p <.01
SGE3:	Linking newly-learned grammar structures with previously-learned ones to enhance grammar skill	86.5	37.5	2.6	$\chi^2 = 2.15$ p <.01
SLSE3:	Watching television programs in English to help one familiar with the accents, tone of voice, and intonations to enhance listening skill	84.6	64.1	53.2	$\chi^2 = 20.95$ p <.01
MRS5:	Self-practising with commercial software to enhance general language knowledge	84.6	75.3	68.9	$\chi^2 = 6.84$ p <.01
SSSE5:	Taking an extra (speaking) class at a language centre to enhance speaking skill	84.6	63.7	9.9	$\chi^2 = 2.22$ p <.01
SSSE7:	Starting conversations with other people in English to enhance speaking skill	80.8	41.4	23.4	$\chi^2 = 70.25$ p <.01
SGE2:	Taking notes on grammar points to enhance grammar skill	80.8	53.4	33	$\chi^2 = 52.02$ p <.01
SPE1:	Imitating native speakers to enhance pronunciation skill	78.8	65.3	34.6	$\chi^2 = 70.29$ p <.01
SVE3:	Using stickers or flash cards to enhance vocabulary	78.8	25.9	6.1	$\chi^2 = 1.53$ p <.01
NRS6:	Noticing one's English mistakes and use that information to enhance general language knowledge	75	12.4	0	$\chi^2 = 2.49$ p <.01
SWSE1:	Writing e-mail, diary, notes, messages, letters, or reports in English to enhance writing skill	75	40.2	7.7	$\chi^2 = 1.42$ p <.01
MRS2:	Joining a forum or a blog or a chat room to enhance general language knowledge	75	65.3	56.7	$\chi^2 = 8.56$ p <.01

Table 7.11 (Cont.) Variation in Students' Individual Language Learning Strategy Use According to Language Proficiency Level

Individual Language Learning Strategy (Used more by High>Moderate>Low Proficiency Students = Positive 51 strategies)		% of high use (2 or 3)			Observed $\chi 2$ p value
		Hi.	Mod.	Lo.	
SLSE5:	Seeking an opportunity to listen to the English language to enhance listening skill	73.1	67.7	18.6	$\chi^2 = 1.57$ p <.01
SPE2:	Checking one's recorded pronunciation against the recordings to enhance pronunciation skill	73.1	27.1	5.8	$\chi^2 = 1.38$ p <.01
SLSE4:	Attending extra classes where native English speakers teach the English language to enhance listening skill	69.2	66.5	18.9	$\chi^2 = 1.45$ p <.01
SVE6:	Using new vocabulary items to converse or to compete with peers to enhance vocabulary	69.2	23.9	6.1	$\chi^2 = 1.24$ p <.01
SGE4:	Asking the teacher for clarification when appropriate to enhance grammar skill	69.2	66.5	18.9	$\chi^2 = 1.45$ p <.01
SSSE6:	Talking to oneself to enhance speaking skill	67.3	41.8	24.4	$\chi^2 = 44.46$ p <.01
SWSE4:	Seeking assistance from other people, such as teachers or friends to enhance writing skill	67.3	53.8	38.8	$\chi^2 = 21.66$ p <.01
SPE4:	Asking friends or teachers to help check the pronunciation to enhance pronunciation skill	67.3	35.9	16.7	$\chi^2 = 66.12$ p = .000
SVE2:	Learning words' formations or words' roots to enhance vocabulary	67.3	33.1	8.3	$\chi^2 = 1.08$ p <.01
NRS2:	Trying to find as many ways as one can to use English to enhance general language knowledge	67.3	43	10.3	$\chi^2 = 1.15$ p <.01
SRSE2:	Reading materials of one's major in English language to enhance reading skill	61.5	38.2	21.5	$\chi^2 = 41.41$ p <.01
SLSE2:	Listening to radio programs in English to enhance listening skill	57.7	44.2	17.6	$\chi^2 = 62.75$ p <.01
SRSE4:	Reading instructions or manuals in English to enhance reading skill	53.8	27.1	14.7	$\chi^2 = 42.20$ p <.01
NRS1:	Creating English learning atmosphere for oneself to enhance general language knowledge	53.8	27.1	17	$\chi^2 = 34.88$ p <.01

Table 7.11 (Cont.) Variation in Students' Individual Language Learning Strategy Use According to Language Proficiency Level

Individual Language Learning Strategy		% of high use (2 or 3)			Observed $\chi 2$ p value
(Used more by High>Moderate>Low Proficiency Students = Positive 51 strategies)		**Hi.**	**Mod.**	**Lo.**	
MRS4:	Singing 'karaoke' in English to enhance general language knowledge	50	0	0.6	$\chi^2 = 2.70$ p <.01
SWSE6:	Having extra writing tutorials to enhance writing skill	48.1	24.3	5.1	$\chi^2 = 77.68$ p <.01
NRS3:	Asking teachers how to learn English effectively to enhance general language knowledge	46.2	26.3	18.9	$\chi^2 = 19.00$ p <.01
NRS5:	Practising general English with friends to enhance general language knowledge	46.2	36.7	11.5	$\chi^2 = 61.18$ p <.01
SPE5:	Practising pronunciation in front of the mirror to enhance pronunciation skill	38.5	25.9	3.2	$\chi^2 = 77.87$ p <.01
SGE5:	Having extra grammar tutorials to enhance grammar skill	38.5	26.7	10.9	$\chi^2 = 34.64$ p <.01
NRS4:	Trying to learn about the culture of native English speakers to enhance general language knowledge	30.8	10.4	0	$\chi^2 = 74.62$ p <.01
(Mixed: Moderate>High>Low = 1 strategy)		**Mod.**	**Hi.**	**Lo.**	**p value**
MRS3:	Making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge	81.3	70	69.2	$\chi^2 = 11.24$ p <.01
SSSE8:	Encouraging oneself to speak English even when one is afraid of making a mistake to enhance speaking skill	92.3	50.3	47.4	$\chi^2 = 36.25$ p <.01

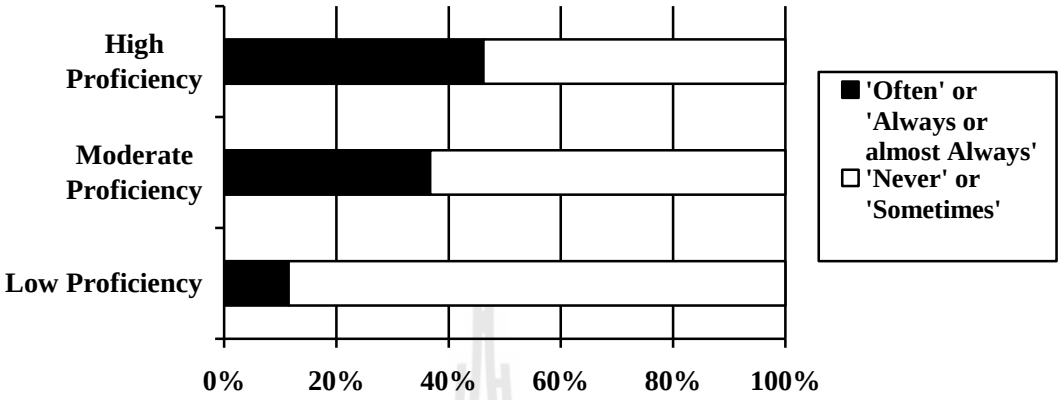
The results of the Chi-square tests in Table 7.11 reveal that of the 51 strategies with the positive pattern of variation, 44 strategies were reported being employed with high frequency of use by more than 50 per cent of the high-, whereas 25 were reported with high frequency of use by more than 50 per cent of the moderate-, and 9 were reported with high frequency of use by more than fifty per cent of the low-

language proficiency students. This implies that good language learners (or high language proficiency students) reported employing strategies more frequently than did poor language learners (or low language proficiency students) at the high level. In addition, good language learners tended to enhance their specific language skills and general language knowledge in overall with high frequency of strategy use.

Taking a closer look at positive pattern of variation, we can see that a significantly greater percentage of high proficiency students than lower proficiency students reporting 51 strategies at the high level. All the high proficiency students reported employing 6 strategies to enhance their specific language skills at the high frequency, i.e. 'listening to English songs to enhance listening skill' (SLSE1), 'seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill' (SSSE3), 'practising writing sentences in English to enhance writing skill' (SWSE2), and 'memorising words in English to enhance their vocabulary' (SVE1). On the contrary, only 30.8 per cent of the students reported employing 'trying to learn about the culture of native English speakers to enhance general language knowledge' (NRS4) at the high level.

When looking at the mixed pattern of variation, a significantly greater percentage of the moderate proficiency students reported 'making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge' (MRS3) than did both high and low proficiency students at the high use level. Similarly, when 'encouraging oneself to speak English even when one is afraid of making a mistake to enhance speaking skill' (SSSE8), high proficiency students reported 92.3 per cent of high use; low proficiency students reported a greater per cent of high use (50.3%) than the moderate proficiency students (47.4 %).

The stacked bar graph in Figure 7.2 illustrates an example of the positive pattern of variation, and Figures 7.3 and 7.4 show examples of a mixed one.



NRS5: Practicing general English with friends

		'Often' or 'Always or almost Always'		'Never' or 'Sometimes'	
	N	**Response**	**%**	**Response**	**%**
High Proficiency	52	24	46.2	28	53.8
Moderate Proficiency	251	92	36.7	159	63.3
Low Proficiency	312	36	11.5	276	88.5

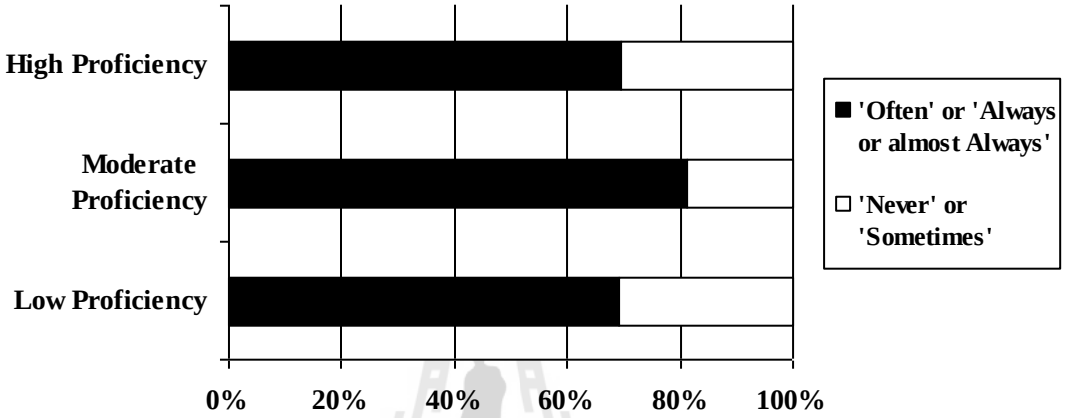
Note: $\chi^2 = 11.24$, df = 2, p <.01

Figure 7.2 Example of Variation Pattern Classified as Positive (High >Moderate >Low)

Figure 7.2 shows 46.2 per cent of high proficiency students reported high frequency of use of NRS5: practicing general English with friends by using non-media reliance strategy to enhance general language knowledge; whereas 36.7 and 11.5 percent of moderate proficiency and low proficiency students reported high frequency of use of this language learning strategy.

Figure 7.3 below displays 81.3 per cent of moderate proficiency students reported high frequency of use of MRS3: 'making use of online resources, such as e-

library, online dictionary, or Google Translate by using media reliance strategy to enhance general language knowledge'; whereas 69.2 and 69.2 percent of high proficiency and low proficiency students reported high frequency of use of this language learning strategy.



MRS3: Making use of online resources, such as e-library, online dictionary or Google Translate

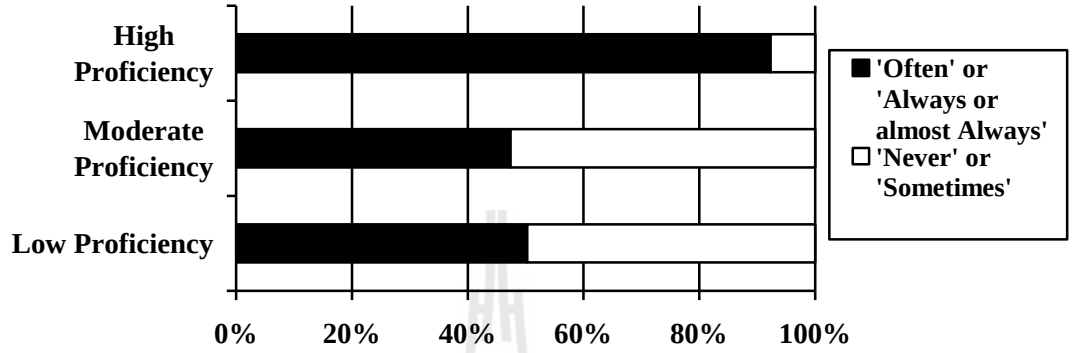
		'Often' or 'Always or almost Always'		'Never' or 'Sometimes'	
	N	**Response**	**%**	**Response**	**%**
High Proficiency	52	36	70	16	30.8
Moderate Proficiency	251	204	81.3	47	18.7
Low Proficiency	312	216	69.2	96	30.8

Note: $\chi^2 = 11.24$, df = 2, p <.01

Figure 7.3 Example of Variation Pattern Classified as Mixed (Moderate > High > Low)

Another example of a mixed pattern of variation is presented in Figure 7.4 below. In this stacked bar graph, 92.3 per cent of moderate proficiency students reported high frequency of use of SSSE8: 'encouraging oneself to speak English even when one is afraid of making a mistake to enhance speaking skill'; whereas 47.4 and

50.3 percent of high proficiency and low proficiency students reported high frequency of use of this language learning strategy.



SSSE8: Encouraging oneself to speak English even when one is afraid of making a mistake

		'Often' or 'Always or almost Always'		'Never' or 'Sometimes'	
	N	**Response**	**%**	**Response**	**%**
High Proficiency	52	48	92.3	4	7.7
Moderate Proficiency	251	119	47.4	132	52.6
Low Proficiency	312	157	50.3	155	49.7
Note: χ^2 = 36.25, df = 2, p <.01					

Figure 7.4 Example of Variation Pattern Classified as Mixed (High>Low >Moderate)

7.5 Summary

This chapter has demonstrated the data analysis for language learning strategy use with the significant variation. The researcher has systematically examined the variations in frequency of students' reported language learning strategy use in three levels: overall strategy use, use of strategies in the SSE and GKE categories, and individual strategy use in relation to the five independent variables, which are gender,

major field of study, attitude toward language learning, 'perceived' class size, and level of language proficiency. The data were collected through the language learning strategy questionnaire with nine purposes of strategy use and a total of 54 individual language learning strategies. The analysis of variance (ANOVA) and the Chi-square (χ^2) tests were the main statistical methods of data analysis for the present investigation.

The research findings presented in this chapter have demonstrated a number of points. Each focal point may help the reader for a better understanding about language learning strategies in a new perspective, as well as the relationship between language learning strategy use at the three levels of analysis. What follows is a summary of each focal point of the Chapter.

1. Based on the results of the analysis of variance (ANOVA), significant variations in frequency of students' overall reported strategy use were found in relation to gender and language proficiency levels. No significant variation was found in relation to major field of study, 'perceived' class size or attitude toward language learning.
    - In terms of student's gender, female students reported more frequent overall use of language learning strategies than did their male counterparts.
    - Regarding students' language proficiency levels, students with high proficiency level reported employing overall strategy use significantly more frequently than moderate and low proficiency level students, while moderate proficiency level students employed language learning strategies significantly more frequently than low proficiency level students.

2. Significant variations in frequency of strategy use in the two main categories were found with relation to two investigated variables. That is, female and high language proficiency level students reported more frequent strategy use of these strategies than male, and lower English proficiency students.
3. Based on the results of the Chi-square (χ^2) tests, significant variations in students' use of individual language learning strategies were found in relation to four independent variables, i.e. gender of students, major field of study, 'perceived' class size, and levels of language proficiency. No significant variations were found between students' use of individual language learning strategies and their attitude toward language learning.
    - In terms of major field of study, a significantly higher percentage of Health Science students than Science and Technology students reported four individual learning strategies at the high use level (e.g. 'listening to English songs to enhance listening skill', 'seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill'. However, a significantly greater percentage of Science and Technology students than Health Science students reported seven individual learning strategies at the high use level (e.g. 'attending extra classes where native English speakers teach the English language to enhance listening skill', or 'practising writing sentences in English to enhance writing skill'.
    - In terms of gender, a significantly greater percentage of female students than did their male counterparts reported nine out of fifty-four individual language learning strategies at the high use level.

- In terms of ‘perceived’ class size, a significantly higher percentage of students who perceived their class size as ‘large’ than students who perceived their class size as ‘optimum’ or ‘small’ reported 4 language learning strategies at the high use level, whereas, a significant higher students perceiving their class as optimum than both students perceiving their class as large or small reported 2 strategies at the high use level.
- In terms of language proficiency, a significantly greater percentage of high language proficiency students than both moderate- and low language proficiency students reported 51 out of 54 individual language learning strategies at the high use level.

In conclusion, the research findings for the present investigation have provided the researcher with useful information and shed light on another perspective of research in the field of language learning strategies. Chapter 8 will summarise the main research findings in response to seven research questions proposed in Chapter 3, followed by the discussions, implications, contributions, limitations and conclusions of the present investigation.

CHAPTER 8

SUMMARY OF THE RESEARCH FINDINGS, DISCUSSIONS AND CONCLUSION

8.1 Introduction and Purpose of the Chapter

The purpose of this chapter is to present the results of the investigation in response to seven research questions mentioned in Chapter 3. This is followed by a discussion of the main findings and the implications emerged from the research for the English teaching and learning for science-oriented university students in the north of Vietnam. Then, the contributions of the present study to the related areas are discussed. Finally, the limitations of the present investigation and proposals for future research are also presented.

In Chapter 6, the researcher has systematically identified types of language learning strategies and frequency of use of the language learning strategies reported by 615 science-oriented university students in the north of Vietnam through the language learning strategy questionnaire. Chapter 7 has illustrated significant variations in strategy use, specifically the relationships between students' reported frequency of use of language learning strategies and different independent variables, namely gender of the students, major fields of study, attitude toward language learning, 'perceived' class size, and levels of language proficiency. Significant findings in students' frequency of language learning strategy use have obtained

through the strategy questionnaire. In this chapter, the following discussions will help readers understand more about certain patterns of significant variations in strategy use, as well as other apparently significant differences in association with each variable.

8.2 Summary of the Research Findings

The present investigation has reported on the research findings of students' reported language learning strategy use, and these findings response to the research questions. They are discussed further below:

8.2.1 Research Question 1: What are the types of language learning strategies reported to be employed by Vietnamese science-oriented university students learning English as a foreign language?

In response to Research Question 1, the research findings reveal that a total 54 language learning strategies were reported by science-oriented university students in the north of Vietnam. Then, these 54 language learning strategies were primarily classified according to the purposes for which they were employed in learning the English language. As a result, language learning strategies emerged from the reported statements and were further grouped into two main categories. These include Category 1: strategies to enhance specific language skills, and is referred to as SSE which consists of 43 individual strategies; and Category 2: strategies to enhance general language knowledge, referred to as GKE, comprising 11 individual strategies. What follows is the emergent strategy inventory of the present investigation.

I. Specific Language Skills Enhancement (SSE)

1. Core Language Skills (CLS)

1.1. Strategies for Listening Skill Enhancement (SLSE)

SLSE1: Listening to English songs

SLSE2: Listening to radio programs in English

SLSE3: Watching television programs in English

SLSE4: Attending extra classes where native English speakers teach the English language

SLSE5: Seeking an opportunity to listen to the English language

SLSE6: Listening to the recording repetitively

1.2. Strategies for Speaking Skill Enhancement (SSSE)

SSSE1: Participating in discussions in groups or classes, or clubs

SSSE2: Self-practising with non-course books

SSSE3: Seeking an opportunity to communicate with foreigners or native speakers of English

SSSE4: Doing a part-time job at tour offices, hotels or restaurants

SSSE5: Taking an extra (speaking) class at a language centre

SSSE6: Talking to oneself

SSSE7: Starting conversations with other people in English.

SSSE8: Encouraging oneself to speak English even when one is afraid of making a mistake

SSSE9: Asking an interlocutor to correct a mistake when speaking English

1.3. Strategies for Reading Skill Enhancement (SRSE)

SRSE1: Reading English brochures, leaflets or billboards

SRSE2: Reading materials of one's major in English language

SRSE3: Reading short stories or funny stories in English

SRSE4: Reading instructions or manuals in English

SRSE5: Looking for opportunities to read as much as possible in English

1.4. Strategies for Writing Skill Enhancement (SWSE)

SWSE1: Writing e-mail, diary, notes, messages, letters, or reports in English

SWSE2: Practising writing sentences in English

SWSE3: Comparing one's writing with friends'

SWSE4: Seeking assistance from other people, such as teachers or friends

SWSE5: Doing extra writing exercises from non-course books

SWSE6: Having extra writing tutorials

2. Supportive Language Skills (SLS)

2.1. Strategies for Pronunciation Enhancement (SPE)

SPE1: Imitating native speakers

SPE2: Checking one's recorded pronunciation against the recordings

SPE3: Using a dictionary to check one's pronunciation

SPE4: Asking friends or teachers to help check the pronunciation

SPE5: Practising pronunciation in front of the mirror

2.2. Strategies for Grammar Enhancement (SGE)

SGE1: Doing extra grammar exercises from non-course books

SGE2: Taking notes on grammar points

SGE3: Linking newly-learned grammar structures with previously-learned ones

SGE4: Asking the teacher for clarification when appropriate

SGE5: Having extra grammar tutorials

2.3. Strategies for Vocabulary Enhancement (SVE)

SVE1: Memorising words in English

SVE2: Learning word formations or word roots

SVE3: Using stickers or flash cards

SVE4: Translating English into Vietnamese or Vietnamese into English

SVE5: Grouping new vocabulary items according to their similarity in meanings or spellings

SVE6: Using new vocabulary items to converse or to compete with peers

SVE7: Playing word games

II. General Language Knowledge Enhancement (GKE)

1. Media Reliance Strategies (MRS)

MRS1: Using a mobile phone or a tape recorder or a compact disc

MRS2: Joining a forum or a blog or a chat room

MRS3: Making use of online resources, such as e-library, online dictionary or Google Translate

MRS4: Singing 'karaoke' in English

MRS5: Self-practising with commercial software

2. Non-media Reliance Strategies (NRS)

NRS1: Creating English learning atmosphere for oneself

NRS2: Trying to find as many ways as one can to use English

NRS3: Asking teachers how to learn English effectively

NRS4: Trying to learn about the culture of native English speakers

NRS5: Practicing general English with friends

NRS6: Noticing one's English mistakes and use that information

Based on the research findings above, 54 individual language learning strategies reported by science-oriented university students in the north of Vietnam were classified into 9 purposes according to what they have reported doing to enhance their English language learning. The language learning strategy inventory showed the strategies that students reported employing to enhance not only the specific language skills but also the general language knowledge.

8.2.2 Research Question 2: What is the frequency with which these language learning strategies are reported to be used by these students?

In response to Research Question 2, the research findings reveal that the students' reported overall use of these language learning strategies based on the holistic mean score is of medium frequency according to the measure demonstrated in Section 6.2.1. The mean frequency score was 1.34. A similar frequency of use of these language learning strategies can be seen in the two main categories as well, with the mean frequency scores for the SSE and GKE categories of 1.35 and 1.26 respectively, no high frequency of strategy use in either of the main categories was found.

In terms of frequency of LLS use at the individual strategy level, it was found that students reported employing 8 individual strategies at the high frequency level. These include SLSE1: 'listening to English songs to enhance listening skill' ($\overline{X}$ =2.14). This is followed by MRS3: 'making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge' ($\overline{X}$ =2.13); MRS1: 'using a mobile phone or a tape recorder or a compact disc to enhance general language knowledge' ($\overline{X}$ =2.06); SGE1: 'doing extra grammar exercises from non-course books to enhance grammar skill'($\overline{X}$ =2.05);

SVE4: ‘translating English words into Vietnamese or Vietnamese words into English to enhance vocabulary’ ($\overline{X}$ =2.04); SWSE2: ‘practising writing sentences in English to enhance writing skill’ ($\overline{X}$ =2.03); SVE1: ‘memorising words in English to enhance vocabulary’ ($\overline{X}$ =2.02); and SSSE3: ‘seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill’ ($\overline{X}$ =2.01). Students reported medium frequency of use of 33 individual strategies, and low frequency of use of 13 individual strategies. The strategy which was reported being employed the least frequently is NRS4: ‘trying to learn about the culture of native English speakers to enhance general language knowledge’ with the mean frequency score was 0.49.

In addition, we can see that science-oriented students made use of media utilisations not only to enhance their specific skills, i.e. ‘listening to English songs to enhance listening skill’, ‘writing e-mail to enhance writing’, and ‘checking one’s recorded pronunciation against the recordings to enhance pronunciation skill’, but also to enhance their general language knowledge, i.e. ‘making use of online resources’, or ‘using mobile phones’.

8.2.3 Research Question 3: Do students’ choices of language learning strategies vary significantly with their gender? If they do, what are the main patterns of variation?

Research Question 3 aims to examine variation in students’ use of language learning strategies as well as patterns of variation according to their gender. As discovered in the language learning strategy questionnaire responded to by 615 science-oriented university students in the north of Vietnam, the findings at three

different levels of data analysis in relation to gender of students can be summarized as follows:

- **Overall Strategy Use**

Based on the results of the analysis of variance (ANOVA), the findings revealed significant variations in students' reported strategy use as a whole in relation to gender of the students. The significant variations show that female students generally reported more frequent overall strategy use than did their male counterparts.

- **Use of Strategies in the SSE and GKE Categories**

The results of ANOVA revealed that significant variations in students' reported use of reading strategies both in the SSE and GKE categories were found to be related to gender of the students. The results showed that female students reported more frequent use of strategies to enhance specific language skills, and those to enhance general language knowledge than did their male counterparts.

- **Use of Individual Language Learning Strategies**

The results of the Chi-square (χ^2) tests showed that the use of 9 out of 54 individual language learning strategies varied significantly according to gender of the students, with a significantly higher percentage of female than male students reporting nine strategies at the high level. Examples were SLSE1: 'listening to English songs to enhance listening skill'; SSSE3: 'seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill'; SSSE9: 'asking an interlocutor to correct a mistake when speaking English to enhance speaking skill'; and SWSE2: 'practising writing sentences in English to enhance writing skill'.

8.2.4 Research Question 4: Do students' choices of language learning strategies vary significantly according to the major field of study? If they do, what are the main patterns of variation?

In response to the fourth Research Question, the variation in language learning strategy use as well as patterns of variation has been focused in this section. As found from the data obtained through the language learning strategy questionnaire responded to by 615 science-oriented university students in the north of Vietnam, the results at the three different levels of data analysis in relation to the student's major field of study can be summarised as follows:

- **Overall Strategy Use**

Based on the results of ANOVA, the findings demonstrated no significant variations in relation to students' major field of study in students' reported overall strategy use.

- **Use of Strategies in the SSE and GKE Categories**

The results of ANOVA showed no significant variations in reported frequency of strategy use in the SSE and GKE categories between students studying Science and Technology, and those studying Health Science.

- **Use of Individual Language Learning Strategies**

The results of the Chi-square tests showed that the use of 11 out of 54 individual language learning strategies varied significantly according to major fields of the study, with a significantly higher percentage of Health Science than Science and Technology reporting 4 strategies at the high use level. Examples are: SLSE1 'listening to English songs to enhance listening skill'; MRS3 'making use of online resources, such as e-library, online dictionary or Google Translate to enhance general

language knowledge'; and SSSE3 'seeking an opportunity to communicate with foreigners or native speakers of English to enhance speaking skill'. Moreover, the results also show a significantly greater percentage of Science and Technology than Health Science students reported employing seven individual strategies at the high use level, such as SWSE2 'practising writing sentences in English to enhance writing skill'; SWSE5 'doing extra writing exercises from non-course books to enhance writing skill'; and SLSE4 'attending extra classes where native English speakers teach the English language to enhance listening skill'.

8.2.5 Research Question 5: Do students' choices of language learning strategies vary significantly according to their perception of the size of class they find themselves in? If they do, what are the main patterns of variation?

In response to the fifth Research Question, the results of the ANOVA showed no significant variations in relation to students' perception of their class size in students' reported overall strategy use, or use of strategies in the two main categories. However, significant variation was found in students' use of individual strategies in relation to this variable as presented below:

- **Use of Individual Language Learning Strategies**

The results of the Chi-square (χ^2) tests showed that the use of 6 out of 54 individual language learning strategies which significantly according to students' perception of their English class size. A significantly higher percentage of students who perceived their class as 'large' than did both who perceived their class as 'optimum' and 'small' class reported employing 4 individual strategies at the high use level, such as SLSE4 'attending extra classes where native English speakers teach

the English language to enhance listening skill'; SWSE2 'practising writing sentences in English to enhance writing skill'; SGE4 'asking the teacher for clarification when appropriate to enhance grammar skill'; and NRS5 'practicing general English with friends to enhance general language knowledge'. However, a significantly greater percentage of students with 'optimum' class perception than students with 'large' and 'small' class perception reported employing 2 individual strategies at the high level, i.e. SGE5 'having extra grammar tutorials to enhance grammar skill' and MRS3 'making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge'.

8.2.6 Research Question 6: Do students' choices of language learning strategies vary significantly according to their attitudes toward language learning? If they do, what are the main patterns of variation?

In response to Research Question 6, the results of the ANOVA showed no significant variations in relation to students' attitude toward their English language learning in students' reported overall strategy use, use of strategies in the two main categories, or use of language learning strategies in individual level. That means no matter what attitude students held toward language learning, they tended to employ strategies to enhance both specific language skills and general language knowledge more or less the same.

8.2.7 Research Question 7: Do students' choices of language learning strategies vary significantly according to their levels of proficiency? If they do, what are the main patterns of variation?

In response to the seventh Research Question, the findings at three different levels of data analysis in relation to levels of language proficiency can be summarized as follows:

- **Overall Strategy Use**

Based on the results of an analysis of variance (ANOVA), the findings revealed significant variations in students' reported strategy use as a whole in relation to levels of language proficiency. The results of the post-hoc Scheffé test showed that students with 'high' language proficiency level reported more frequent use of strategies than those with both 'moderate' and 'low' language proficiency levels did. No significant variations in the overall strategy use were found among the students with 'moderate' and 'low' proficiency levels.

- **Use of Strategies in the SSE and GKE Categories**

The results of ANOVA revealed that significant variations in students' reported strategy use both in SSE and GKE categories were found in association with students' level of language proficiency. The results of post-hoc Scheffé tests demonstrated that 'high' language proficiency level students reported more frequent use of strategies in the SSE and GKE categories than did both 'moderate' and 'low' language proficiency level students.

- **Use of Individual Language Learning Strategies**

The results of the Chi-square (χ^2) tests showed the use of 53 out of 54 individual language learning strategies varied significantly according to levels of language proficiency with a significantly greater percentage of 'high' language proficiency level students than did both 'moderate' and 'low' language proficiency level students reporting 51 individual strategies at the high use. Examples are

‘listening to English songs to enhance listening skill’ (SLSE1), ‘translating English words into Vietnamese or Vietnamese words into English to enhance vocabulary’ (SVE4), ‘doing extra grammar exercises from non-course books to enhance grammar skill’ (SGE1), ‘reading short stories or funny stories in English to enhance reading skill’ (SRSE3), or ‘using a mobile phone or a tape recorder or a compact disc to enhance general language knowledge’ (MRS1). Likewise, a significantly higher percentage of ‘moderate’ language proficiency level students than did both ‘high’ and ‘low’ language proficiency level students reported employing ‘making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge’ (MRS3) at the high level. Whereas, a significantly higher percentage of ‘low’ language proficiency level students than did ‘moderate’ language proficiency students reporting ‘encouraging oneself to speak English even when one is afraid of making a mistake to enhance speaking skill’ (SSSE8) at the high level.

8.3 Discussions of the Research Findings

Based on the responses to seven research questions in the previous sections, the relationship of language learning strategy use at different levels and the five independent variables have been examined and described. This section aims to discuss the research findings in relation to the independent variables investigated. The discussion is presented in respect of the explanations which are possible for what has been discovered. The focal point for discussion concerns possible reasons hypothesised by the researcher to where significant differences in certain strategy use for each variable become apparent although we are not certain that these hypotheses can be the definite explanation for what has been mentioned. However, since the

present investigation has a different method of classifying language learning strategies as well as a different way of employing the data analysis, it might not be easy to compare strategy use by students in the very detailed manner of the present investigation with previous research works. What follow are further discussions of the findings in relation to the five variables.

8.3.1 Use of Language Learning Strategies and Students' Major Field of Study

As evidenced in Chapter 2, many previous research works have been conducted and reported a difference of language learning strategies used by students from different fields of study (e.g. Gu, 2002; Peacock and Ho, 2003; Chang et al., 2007; Kyong and Oxford, 2008; McMullen, 2009; and Fewell, 2010). Findings from those studies showed that students studying in English major generally used significantly more language learning strategies than did those studying in other majors. Very few studies have been found in terms of the use of language learning strategies and science-oriented students.

However, the findings of the present investigation were consistent with Prakongchati's (2007) in terms of strategies at the individual level. As can be seen in Section 7.4.1, a significantly greater percentage of Health Science students than Science and Technology students reporting four individual strategies at the high use level in which 'listening to English songs to enhance listening skill' (SLSE1), and 'making use of online resources, such as e-library, online dictionary or Google Translate to enhance general language knowledge' (MRS3) were reported the highest percentages of high use. On the contrary, a significantly greater percentage of Science and Technology students than Health science students reporting seven individual

strategies at the high use level, and the two highest percentages of high use were ‘practising writing sentences in English to enhance writing skill’ (SWSE2) and ‘doing extra writing exercises from non-course books to enhance writing skill’ (SWSE5). This can be hypothesized that Health Science students are more media reliance than Science and Technology students. It may be because Health Science students, according to their program requirements, from very beginning of their university study, they had to pursue job practicum in hospital. They had to use hospital facilities and made use of them to enhance their language learning. In contrast, Science and Technology students’ program’s objectives were in laboratories with machines or industrial facilities and experiments then writing reports; therefore, they tended to employ writing strategies more frequently than Health Science students did.

Another possible explanation that might be drawn from the findings is students’ gender. As can be seen in Table 3.1, more percentage of female students studying Health Science reported employing more strategies than their male counterparts. In addition, Table 7.9 showed a significantly greater percentage of female than male students reported employing 9 individual language learning strategy at the high level. This may be an evidence that can explain the findings of the present investigation.

8.3.2 Use of Language Learning Strategies and Gender of Students

The findings of the present investigation showed those female students’ overall strategy use, use of strategies in the SSE and GKE categories, and use of individual language learning strategies significant difference to male students. In other words, females reported employing certain strategies significantly more frequently than their male counterparts. No strategies were reported being used

significantly more frequently by male students. These results are consistent to the findings of many previous studies which demonstrated that gender had a profound influence on students' choices of strategy use (Ehrman and Oxford, 1989; Oxford and Nyikos, 1989; Nyikos, 1990; Tercanlioglu, 2004; Ok, 2005; Prakongchati, 2007; Kyong and Oxford, 2007; and McMullen, 2009).

A possible explanation is, according to Nyikos (1990), females attach great importance to expressing themselves verbally, while males appear to value facility with visual and spatial information. Ehrman and Oxford's (1989; 1990), Oxford and Nyikos's (1989) research works revealed that female students reported employing certain strategies significantly more frequently than did their male counterparts, especially social/affective strategies. Ok (2005) also affirmed that female students are superior to, or very different from, male students in many social skills with females showing a greater social orientation. Although Politzer's (1983) and Intaraprasert's (2000) studies revealed no strong relation between gender of students and their choices of strategy use, the important findings which were worth discussing of the present investigation are significant differences of strategy use among female and male students.

As found in the findings of the present investigation, female students scores were higher than male students in terms of not only strategy use, but also frequency of use, especially strategy use for enhancing specific language skills, i.e. 'practising writing sentences in English' to enhance writing skill, 'playing word games' to enhance vocabulary, 'taking notes on grammar points' to enhance grammar skill, 'listening to English songs' to enhance listening skill, and 'seeking an opportunity to communicate with foreigners or native speakers of English' to enhance speaking skill.

A possible factor which may explain higher frequency of strategy use by female is women are generally expected to succeed in language learning, and failure in English for female students may well be more face-threatening than for male students. It is because, as pointed out by Oxford (1995), the gender difference may have been associated with women's greater social orientation, stronger verbal skills, and greater conformity to norms, both linguistic and academic, and learning strategies could well be a function of social expectations, attitudes, motivation, and learning styles. The fact that female science-oriented students in Vietnam spent more extracurricular time on English learning also provides support to this explanation.

In sum, we may conclude that gender of the students was significantly related to the employment of strategy use for their language learning purposes. Female students are naturally more skillful in using strategies to learn a language. This may be accounted for the innate characteristics of women, levels of language proficiency, and social interaction.

8.3.3 Use of Language Learning Strategies and Students' Attitude toward Language Learning

The results of most of the previous studies in which students' attitude toward language learning was taken into account have concluded that unsuccessful/successful students who have positive attitude toward language learning use more learning strategies than the unsuccessful/successful students with negative attitude, especially in social sciences, e.g. Kyongok and Oxford (2008), Çetingöz and Özkal (2009). The findings of the present investigation, however, showed no strong relation between students' attitude toward language learning and their employment of strategy use. In this respect, suggest that Vietnamese science-oriented university students reported

employing learning strategies in more or less the same degree, irrespective of their attitude.

As mentioned earlier in Section 7.4.3, this may be hypothesised that science-oriented students had to fulfill all the program requirements even they held negative attitude toward language learning. They had to base on their experience, their existent knowledge to employ English language learning strategies. This is consistent with Bohner's (2001, p. 243) theory of attitude functions when he stated that "attitudes of people are high in self-monitoring (who tailor their behavior to fit situational cues and reactions of others)". Schunk (1996, p. 392) also affirmed this explanation since he pointed out that "people learn attitude through their experience". In addition, Davidoff (1987, p. 571) suggested that "we can have attitude toward something by learning through observation, we simply observe and imitate others"; therefore, students who held negative attitude toward language learning may observe and follow successful students' strategies in learning the English language. However, more research is needed to explore the impact of this variable in the context of science-oriented students in the north of Vietnam.

8.3.4 Use of Language Learning Strategies and Students' Perception of their Class Size

As presented in Chapter 2, a few research works have been conducted to investigate students' perceptions of their class size in relation to use of language learning strategies. Researchers in the field, i.e. Sarwar (1992); Mebo (1995); and Embi (1996) have concluded that students who perceived their class size as large tended to report using language learning strategies significantly more frequently than those perceiving their class size as either optimum or small. However, the findings of

Intarapresert's (2000) study showed no strong relation between students' perception of their class size and their employment of language learning strategies.

In the present investigation, students' perceptions of their class size have somewhat relationship to their employment of language learning strategies. However, pattern of variations seemed to be consistent with the findings of Mebo (1995) and Embi (1996) in terms of language learning strategy employment by students perceiving their class size as large. As presented in Section 7.4.4, a significantly greater percentage of students who perceived their class size as large than students who perceived their class size as optimum or small reported employing four individual language learning strategies at the high level. In addition, three out of these four strategies were classroom-related strategies, i.e. 'attending classes where native English speakers teach the English language to enhance listening skill' (SLSE4), 'asking the teacher for clarification when appropriate to enhance grammar skill' (SGE4), and 'practicing general English with friends (in class) to enhance general language knowledge' (NRS5). This may imply that students who studied in large class did not have much chance to interact with their teachers or friends; therefore, they needed more class time in order to satisfy their need or clarify what they did not understand. As a result, more classroom-related strategies were reported being employed to enhance both specific language skills and general language knowledge.

8.3.5 Use of Language Learning Strategies and Students' Language Proficiency Levels

Previous research works in the field of language learning strategies were carried out to investigate the use of LLSs by students with different levels of language proficiency have revealed that higher proficiency level students generally reported

employing LLSs significantly more frequently than those of lower proficiency level students did. Examples are Oxford and Nyikos (1989); Wharton (2000); Intaraprasert (2000); Embi et al, (2001); Shmais (2003); Peacock and Ho (2003); Griffiths (2003); Liu (2004); Lengkanawati (2004); Khalil (2005); Park (2005); Prakongchati (2007); Wu (2008); Ying (2009); Sriboonruang (2009); Fewell (2010); and Anugkakul (2011). The present investigation also discovered the consistent results as formerly shown.

Based on the findings of the present investigation, higher language proficiency students reported greater use of overall strategies than did lower language proficiency students. This can be obviously seen in their use of strategies in the two main categories (SSE and GKE). In the level of individual language learning strategy use, the individual learning strategies were found with variously significant variation with positive (high>moderate>low) and mixed patterns of variation (moderate>high>low) or (high>low>moderate). Specifically, 53 out of 54 strategies were found significantly difference, and almost all of them were positive patterns of variation. One possible explanation for the conclusion that might be drawn from this study for the relationship between use of language learning strategies and students' levels of language proficiency is students' lack of knowledge of the leaning strategies. Many researchers have demonstrated that strategy use and awareness of learning strategies are different in more and less proficient (Wenden, 1987; Bremner, 1999; and Green and Oxford, 1995). Chamot (1987) affirmed that effective learners and ineffective learners are different in that the former are able to use strategies appropriately, while the latter also use a number of strategies but inappropriately. In other words, strategy use and proficiency are both causes and outcomes of each other; active use strategies help

students attain higher proficiency, which in turn makes it likely that students will select these active use strategies (Prakongchati, 2007).

In addition, another factor which may explain the relationship between use of language learning strategies and students' levels of language proficiency is students' motivation. Ellis (1994, p. 715) defines the term 'motivation' as 'the effort which learners put into learning an L2 as a result of their need or desire to learn it'. Motivation plays an important part in language learning and language achievement (e.g. Ellis, 1985; 1994; Gardner, 1985; and Dörnyei, 2003). In this regard, Yule (1996, p. 195) comments that "students who experience success in language learning are among the highest motivated to learn and motivation may be as much a result of success as a cause". Additionally, as suggested by Wharton (2000), successful language learners who are more motivated tend to use more strategies than unsuccessful students, and the particular reason for studying the language was important in the choice of strategies. The findings of the present investigation suggest that higher proficiency students may be highly motivated to seek opportunities to enhance both specific language skills and general language knowledge themselves outside the classroom. This was evident in their reported high frequency of use of out-of-class strategies. Furthermore, higher proficiency students tended to employ strategies more frequently than lower proficiency students. This might be explained that higher proficiency students are better at managing themselves by approaching language tasks more actively and effectively, because they are more proficient, or because they are more self-confident while studying in class, than those with moderate and low proficiency. As a result, the present findings suggested that implementing direct strategy instruction and changing the teaching approach in

language classes may be an important move towards enhancing low language proficiency students' development (Saengpakdeejit, 2009).

The research findings further showed a significantly greater percentage of moderate-proficiency students than high and low proficiency students reported using 'making use of online resources, such as e-library, online dictionary or Google Translate' to enhance their general language knowledge at the high use level. This may be because students with moderate language proficiency found themselves not proficient in language enough; therefore, they relied on media and technology to fulfill their lack of knowledge in order to catch up with higher language proficiency students in class.

In conclusion, the findings suggested that three independent variables for the present study, i.e. gender of students, major fields of study and students' levels of language proficiency, have been found in association with students' choice of strategy use. However, students' perception of their class size had a minor significant difference in relation to student' choice of language learning strategy. No significant difference was found between students' attitude toward language learning and students' language learning strategy use. The findings of the present study were generally consistent with the previous studies as demonstrated in Chapter 2 in terms of gender of students, major fields of study, and students' levels of language proficiency, where female students reported a higher frequency of strategy use than did their male counterparts; similarly, high proficiency students reported a higher frequency of strategy use than did moderate and low proficiency students. Likewise, Health Science students and Science and Technology reported using language learning strategies significantly difference. However, in respect of the students'

attitude toward language learning, the findings of this study, being slightly different from some previous findings, suggested that there was a minor significant difference in strategy use between students who held positive attitude and students who held negative attitude toward language learning.

All in all, when taking all five independent variables into consideration, we may come to the conclusion that the relationship between students' choice of leaning strategy use and gender of students, major fields of study, attitude toward language learning and 'perceived' class size seems to be one directional as presented in the framework for the present investigation in Figure 3.2. In contrast, the relationship between students' choices of strategy use and levels of language proficiency is still complex because it is bi-directional – it cannot be clearly determined whether learning strategy use is the cause or result of students' levels of language proficiency.

8.4 Implications for the Teaching and Learning of English for Science-oriented University Students in the North of Vietnam

As mentioned earlier in the previous sections (Sections 8.2.1-8.2.7), the research findings in response to the research questions demonstrate that there is a relationship between gender of students, major fields of study, 'perceived' class size, and language proficiency levels, and students' use of language learning strategies, use of strategies in the two main categories, as well as use of individual strategies. The researcher found that the research findings may helpful for both teachers and learners. Therefore, some implications for the teaching and learning of English for science-oriented students may be drawn as follows.

1. Based on the findings of this investigation, it is interesting that science-oriented university students in the north of Vietnam reported employing out-of-class strategies to enhance their language skills as well as their general language knowledge more frequently than classroom-related strategies. In other words, these students reported employing language learning strategies for training themselves. They also made use of media devices, i.e. cassette recorder, mobile phones, laptops, computers to enhance their language knowledge. It seemed that while studying in class, students did not have enough opportunities to set their own goals, and teaching is restrictive, formal, and mostly geared towards exams. They were quite negative in following to teachers' instructions, or doing every teacher's requirements. On the contrary, students seemed to be more active and independent outside the classroom settings. As a result, English language teachers need to consider and modify their teaching strategies or styles. In addition, they may be able to promote autonomous learning to their students simultaneously. Accordingly, teacher training courses are considerably required to empower English language teachers carry out their media-aided instructions as effectively as possible. As Intaraprasert (2000) supports, the language teachers' provision of media in various forms is recommended as an alternative means of input sources of the target language for their students. However, it is important for teachers to understand that certain language learning strategies may work with some learners, but not with others.
2. One of the findings of the present investigation reveals that high proficiency students reported making maximum use of computer programmes or Internet

resources to enhance their specific language skills such as listening, writing, speaking, or to enhance their general language knowledge in English. Therefore, language teachers may be able to provide interactive computer programmes using available open-sources as Moodle, Violet or Joomla installed in self-access centre where students can study on their own outside class time. In addition, they may create a blog or a forum, this will help teachers enable students to be active and positive in their language learning which is not limited to time and location.

3. According to Oxford (1989); Bremner (1999); Intaraprasert (2000); Wharton (2000); and Prakongchati (2007), language proficiency is related to language learning strategies. Nunan (1997), Cohen (1998), and Chamot et al. (1999) also indicated that students' use of strategies can be teachable and trainable. Therefore, strategy training should be integrated into the language curriculum to facilitate the learners' effective language learning. In fact, there are some models for language learning strategy instruction have existed and developed by some researchers in the field, i.e. Styles and Strategies-Based Instruction (Cohen, 1998), Cognitive Academic Language Learning Approach (Chamot et al., 1999, and Chamot, 2005), and The Grenfell and Harris Model (Grenfell and Harris, 1999). Regarding benefit of such strategy training programs, Brown (1993) has affirmed that these strategy training programs could empower students to be more successful with a sense of what language learning strategies are and how they can develop their own and apply them effectively.

4. The main findings of the present investigation reveal that science-oriented university students in the north of Vietnam generally reported employing strategies to enhance both their specific language skills and general language knowledge. As a result, it would be worth promoting language learning strategy use by encouraging teachers and students to raise their awareness about the importance of language learning strategies, and to think about ways for using appropriate language learning strategies. In doing so, a workshop or a professional development meeting should be held among the English staff members in order to raise their awareness of how important language learning strategies are and how language learning strategies can enhance their students' English language learning process. The staff members should be encouraged to introduce language learning strategies as part of classroom lessons to their students. They should also be asked to examine the strategy inventory and provide their opinion about what should be included in order to make the strategy inventory more comprehensive. This could offer a wider selection for students in choosing learning strategies to suit them. In addition, although students may differ in their knowledge of strategies, understanding about attributions for successful strategy use should be suggested to guide them to become more purposeful learners of the target language. Therefore, teachers may organize a seminar to introduce the learning strategies and demonstrate how to take appropriate strategies to meet students' needs in different learning tasks in their learning process.

8.5 Contributions of the Present Investigation

The present investigation has made some significant contributions to the field of language learning strategies and considered to be the first empirical research work in the field in relation to variable taken into account in the context of Vietnam. These significant contributions based on the findings of the present study can be characterized as follows:

1. As mentioned earlier in Chapter 2, some research works on language learning strategies have carried out with Vietnamese secondary school and university students. However, most of the focal points of study have generally been limited to exploring strategy use by good language learners or examining the relationship among language learning strategy use, levels of language proficiency and field of study. Consequently, the present study has emphasised and offered a broader point of views on the focal points of study through a variety of investigated variables, namely gender of students; major field of study; attitude toward language learning; 'perceived' class size; and levels of language proficiency.
2. Apart from the variables investigated, the researcher has systematically produced a language learning strategy inventory for investigating the use of language learning strategies reported being employed by science-oriented students in the north of Vietnam as shown in Chapter 4. Instead of borrowing the already-existing classification, the emergent strategy inventory of the present investigation was based on the self-reported data obtained through students' semi-structured interviews. Therefore, this inventory may be useful in some extent to similar contexts, if not, the inventory-generating process maybe somehow served as a guide for other researchers to construct their own language learning strategy inventory as it is always tractable.

3. In measuring the students' levels of language proficiency, the researcher has systematically constructed The Reading Proficiency Test for Science-oriented Students (RPT-SoS) based on language testing theories and previous researchers' guidelines. This test was constructed rigorously to serve the particular purpose of the present investigation; moreover, it has proved to be effective in terms of reliability and validity. If the test content is not appropriate for other groups of students, the test construction process may serve other researchers as a guide to construct their own reading proficiency tests.
4. In terms of data analysis, both qualitative and quantitative methods were employed. Coding, grouping, categorizing, and different types of statistical methods, i.e. descriptive statistics, an analysis of variance (ANOVA), Chi-square tests (χ^2) were used. This data analysis process can be a guide for other researchers to apply in similar types of reported data.

8.6 Limitations of the Present Investigation and Recommendations for Future Research

The present investigation has been conducted in a data-based and systematic manner; therefore, it is valid and valuable in dealing with the primary research questions to explore and describe types of language learning strategies reported by science-oriented university students. Furthermore, the present investigation also investigated patterns of variation and relationships between frequencies of students' reported strategy use at different levels with reference to each investigated variable, i.e. gender, major field of study, attitude toward language learning, 'perceived' class size, and levels of language proficiency. However, in carrying out the research,

certain limitations have been apparent, these limitations also shed some light for future research which are presented as follows:

1. The findings of the present investigation showed that almost all strategies reported being employed by the students were out-of-class language learning strategies. Students employed those out-of -class strategies to train themselves to enhance both specific language skills and general language knowledge, i.e. listening to English songs, seeking opportunities for English practice outside the classroom, watching English-speaking films, listening to programs in English, practicing with software, and imitating native speakers. In order to examine what science-oriented students did in class to enhance their language learning and why they reported employing out-of-class strategies, classroom observation should have been included as one of the methods of data collection for the present investigation. This method may enable a researcher to discover other classroom aspects, e.g. how the teacher manages his or her English class, classroom interaction between students, between teachers and students. Although some researchers in the field (e. g. Naiman et al, 1978; Rubin, 1981; and Graham, 1997) comment that classroom observation is not a productive method to reveal students' learning strategies, this method could help the researcher to explore why students had reported employing out-of-class strategies to enhance their language learning.
2. The research population should have been more well-balanced in terms of each investigated variable. In other words, the number of students from each gender, field of study, and levels of language proficiency, should have been approximately the same.

3. The findings would be more interesting and more LLSs would have been explored if students came from other types of universities since the research population of the present investigation was limited to science-oriented universities in the north of Vietnam. Public and private universities, different years of study, and types of programs should have been included. In addition, as presented in Chapter 2, a large number of research works on language learning strategies have been carried out with participants who were EFL or ESL learners. Therefore, an exploration of LLS use of Vietnamese communities in the United States, Canada or Australia in learning English would contribute more valuable information to the field.
4. A larger number of students should have been involved in the semi-structured interviews and larger respondents for the language learning strategy questionnaire. The language learning strategies in the present investigation were limited to those appearing in the questionnaire only. Although the researcher had already provided some blank spaces for students to add their comments or additional language learning strategies, very few students responded to that. Therefore, the questionnaire should have been included more language learning strategies from other existing strategy questionnaires provided by other researchers in the field to provide more choices to students to obtain more information for the present investigation.
5. The present investigation is limited to 5 variables, other aspects should be further explored, i.e. education background, types of institution, locations of institutions, institution facilities, and motivation.

8.7 Conclusion

The present investigation has contributed to the language learning strategy studies area in terms of language learning strategy classification, measurement and evaluation in language proficiency, and the investigated variables in relation to LLS use of science-oriented university students. Language learning strategies classification of which science-oriented university students in the north of Vietnam reported employing in learning the English language has been considered one of the major contributions. The language learning strategies have been classified according to the language purposes to be achieved; i.e. specific language skills enhancement and general language skill enhancement. Of the five investigated variables, two variables, i.e. attitude toward language learning and 'perceived' class size have rarely been or never taken into consideration by any other former researchers in this area. In addition, none has been found to be conducted in the context of Vietnam.

Finally, the researcher has suggested some pedagogical implications emerging from the research findings for the teaching and learning of English to university students, especially, for science-oriented students in the north of Vietnam. The researcher has also provided the limitations of the present investigation and some proposals for further research. With a careful research design and appropriate instruments as presented in Chapter 3, further research in the future may provide insightful pictures of how language learning strategies are employed by different students in different learning contexts, and may help students to enhance their learning outcomes in their learning process at universities level.

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APPENDIX A

The Semi-structured Interview Guide on Language Learning Strategies

(English version)

1. What is your name?
2. What is your major field of study?
3. How many English classes are you studying this term?
4. How many students are studying English with you this term in one class?
5. According to 4, do you think your class is large, optimum, or small?

    5.1 Do you think it is a problem for you?

    5.2 Why? Or Why not?

6. According to Q6, do you think it is enough for you?
7. What is the level of your ability in English as high, moderate, or low?
8. Do you think that English is easy to learn? Why? or Why not?
9. What do you do to improve your English in general?
10. What do you find (think) very difficult for you in learning English?
11. How do you usually solve the problem?
12. Do you have any comments about learning English in your present classroom?

APPENDIX B

The Semi-structured Interview Guide on Language Learning Strategies (Vietnamese version)

1. Tên em là gì?
2. Em học chuyên ngành gì?
3. Kỳ này em học mấy tiết tiếng Anh / tuần?
4. Lớp tiếng Anh của em có bao nhiêu sinh viên?
5. Với số sinh viên như vậy, theo em là đông, vừa hay nhỏ?

   5.1. Theo em với …. bạn trong lớp như vậy có khó khăn gì không?

   5.2. Tại sao Có? Tại sao Không?

6. Theo em, học tiếng Anh…. giờ / tuần có đủ không?
7. Em tự đánh giá khả năng tiếng Anh của mình thế nào? Tốt, Trung bình hay Yếu?
8. Em có nghĩ rằng mình có thể học giỏi tiếng Anh không? Tại sao Có? Tại sao Không?
9. Nói chung, em đã làm gì để nâng cao khả năng tiếng Anh của mình?
10. Theo em, học tiếng Anh có gì khó không?
11. Em thường giải quyết vấn đề đó như thế nào?
12. Em có nhận xét gì về lớp học tiếng Anh hiện tại của mình hay không?

Xin cảm ơn em, chúc em học giỏi và thành đạt

APPENDIX C

A Sample Interview (Vietnamese version)

Interviewer: Duong Duc Minh

Interviewees: Nguyen Thi Hue – Class: K46F1

Time: 14h00, 20th May 2011

Venue: Meeting room, Fundamental Sciences Faculty, TNUT.

Minh: Huệ hiện tại đang học K46S em học chuyên ngành gì?

Huệ: Em học, khoa cơ khí còn bọn em chưa phân chuyên ngành

Minh: Kỳ này em học mấy tiết 1 tuần TA?

Huệ: Em học 6 tiết 1 tuần.

Minh: 6 tiết 1 tuần hay 6 tiết 1 buổi?

Huệ: 6 tiết chia làm 2 buổi, 3 tiết 1 buổi.

Minh: Lớp TA hiện tại của em có bao nhiêu sinh viên.

Huệ: Hiện tại có khoảng gần 80 sinh viên.

Minh: Số lượng thực tế thường đi học?

Huệ: số lượng thực tế thường đi học chỉ nằm ở mức 40 đến 50 sinh viên thôi ạ.

Minh: hiện tại với với số lượng 80 sinh viên nhà trường đăng ký theo em là lớp đông hay vừa vừa?

Huệ: Nếu như theo nhà trường phân là khá đông, còn với số lượng thực tế em thấy khoảng tầm từ 35 đến 40 bạn 1 lớp là vừa bởi vì trong 1 buổi học TA cần giao tiếp nhiều , cần giáo viên tiếp xúc nhiều để phát hiện ra mình có cái sai gì, có điểm mạnh gì nếu như quá đông thì sẽ ko tiếp xúc được nhiều

Minh: với hiện tại là 80 em cho là hơi đông, vậy thì học trong 1 lớp đông thì có vấn đề gì xẩy ra khi mà mình học TA lại học trong 1 lớp đông người?

Huệ: Theo em với 1 lớp đông người nếu như ko giữ đc trật tự thì việc đầu tiên là mình ko có khả năng nghe được giáo viên phát âm, và 1 điều quan trọng giáo viên phát âm rất chuẩn sẽ học được cách phát âm, cái thứ 2 là mình ko nghe

giảng được , thứ 3 là nếu như quá nhiều thì giáo viên sẽ ko có khả năng theo dõi hết được mình giáo viên không phát hiện ra lỗi sai mà mình mắc phải trong giờ học TA và nếu như quá nhiều SV thì giáo viên sẽ ko có khả năng theo dõi được hết SV, phát hiện được lỗi sai…có quá nhiều sinh viên thì những SV nào có ý thức tốt, SV nào ý thức ko tốt thì khả năng tự tìm hiểu bài , tự học là không có.

Minh: ngoài ra thường là lớp đông có rất nhiều vấn đề đặc biệt là môn mình nặng, học TA vẫn thiên về xu hướng giao tiếp, vậy vấn đề ngoài những khó khăn đấy ra em còn thấy những khó khăn nào nữa đặc biệt nhất trong 1 lớp đông? Em vừa nói là mất trật tự ảnh hưởng đến bài, giáo viên ko thể quan sát được hết, giáo viên ko thể giúp cho từng SV học hành cẩn thận được bởi vì ko có thời gian. Ngoài ra còn có gì nữa?

Huệ: Theo em thì những SV có ý thức tốt thì mọi người sẽ có ý thức tự đi học nhg mà nếu đông quá thì GV sẽ ko thể quản lý được hết lớp, những Sv nào ý thức ko cao như thế sẽ làm trình độ TA của họ càng giảm xuống.

Minh: Thế thì trong lớp đông ấy thường em làm gì?

Huệ: Trong lớp đông thực ra thì thứ nhất em học khoa cơ khí, thứ hai em lại là lớp trưởng nên số lượng bạn nữ rất ít em nghĩ em cũng là 1 người ý thức rất là cao khi học bao giờ em cũng ngồi bàn đầu tiên nên em cũng ko để ý được hết các bạn.

Minh: Ngoài lớp đông như em nói em ngồi bàn đầu đấy cũng là cách thứ nhất để giáo viên chú ý, thứ hai hay là được nghe những gì giáo viên nói dễ dàng hơn. còn gì nữa ko? Đối với 1 lớp đông em nghĩ là ko phù hợp với 1 môn học TA….

Minh: Theo em hiện tại mình đang học 6 tiết TA trên 1 tuần theo em như vậy có đủ ko.

Huệ: đối với TA giao tiếp 6 tiết 1 tuần em nghĩ là đủ nhưng sau này học TA chuyên ngành em nghĩ là hơi ít

Minh: Hiện tại như nầy có vẻ đủ , kỳ này mới là kỳ thứ 2. Vậy qua 2 kỳ học TA ở đây em tự đánh giá khả năng học TA của mình . Ở đây thầy có 3 mức: Tốt, TB hay yếu

Huệ: em nghĩ ko hẳn sau 2 kỳ học TA ở đây, mà em học 7 năm TA ở trường phổ thông thì em thấy trình độ TA của em ko cao , ở mức TB em ko có khả năng giao tiếp tốt với người nước ngoài, vốn từ cũng ít.

Minh: Vậy nếu có đủ điều kiện để học TA tốt, VD như có môi trường học TA, giáo viên tốt dạy TA vậy em nghĩ em có học tốt TA được ko? Em nghĩ là em học được.

Minh: Vậy dựa vào cái lý do nào để em nghĩ em có thể học giỏi trong những môi trường như vậy?

Huệ: em nghĩ là, e thích nhất 1 câu là ko có gì là ko thể.., bản chất là mình chưa bao giờ chú tâm vào nó, mình chưa đặt cho nó 1 niềm đam mê còn việc học hay ko là do ở bản thân mỗi người em nghĩ là em cũng có khả năng khi em chú tâm vào.

Minh: Nói chung là em đã học, chắc chắn là học và phải thi, vậy ngoài ra muốn hay ko muốn mình cũng phải tìm cách để đạt được những cái tối thiểu là phải thi, nói chung em đã học như thế nào để đạt được điều đấy, để nâng cao trình độ của mình..

Huệ: Với em thì thực sự thì cũng ko hẳn là người chăm chỉ nhưng đối với môn TA thì mỗi ngày em đều dành từ 30 phút đến 1 tiếng để học tiếng để học từ mới, và thông qua cấu trúc…

Minh: Trong 30 phút ấy em thường làm gì? Trong 30 phút ấy em thường xem lại các từ mới, và học các từ mới trong ngày hôm nay sau đấy là làm 1 số bài tập nhỏ Em đang nói đến học từ, từ mới. Vậy em làm thế nào để nhớ được từ mới học

Huệ: những từ mới học thường là em viết đi viết lại nhiều lần, và em viết thành những mảnh giấy nhớ dán lên tường , dán ở những nơi mình hay để ý tới, và em còn có 1 quyển sổ tay viết từ mới những lúc rãnh rỗi ngồi ghế đá mình có thể xem qua.

Minh: sao em lại nghĩ đó là cách để giúp cho mình nhớ được từ mới.

Huệ: em nghĩ là cái gì thường va chạm thì tốt hơn nhiều, ngoài ra em nghĩ học TA là học những cái gì gần gũi quen thuộc, chẳng hạn học từ những cái bát, cái đũa mình có thể biết đấy phát âm là những từ gì…..

Minh: Đấy mới chỉ là từ vựng thôi đúng ko? ngoài ra còn rất nhiều những lĩnh vực khác nữa, từ vựng chỉ là một phần của TA.

Huệ: về ngữ pháp em thường học và làm bài tập ở những quyển sách

Minh: em thường làm những bài tập gì?

Huệ; bài tập theo các thì, điền từ, đặt câu

Minh: em nghĩ là mình làm những bài tập trong sách như vậy có nâng cao được trình độ,

Huệ: chẳng qua là mình chỉ nâng cao được trình độ ngữ pháp còn nếu như để phát âm tốt thì theo em nghĩ mình phải có điều kiện tiếp xúc nhiều với người nước ngoài, bản chất bây giờ là mình đang học tiếng anh giao tiếp, mình phải có khả năng giao tiếp tốt , để đạt được kết quả cuối cùng là mình phải giao tiếp tốt, giao tiếp được đồng nghĩa với việc mình biết được ngữ pháp và mình biết nhiều từ mới.

Minh: ngoài ra còn gì nữa ko? ngữ pháp, từ mới, từ vựng…

Huệ: Từ vựng em luyện được cách phát âm. Phát âm có khác với từ vựng ko? Thế em thường học ngữ âm như nào?

Huệ: Ngữ âm em chỉ học theo giáo viên, giáo viên nào dạy hay thì mình bắt chước. nếu giáo viên phát âm chuẩn em sẽ học như thế nào? Em sẽ để ý cách phát âm của họ, để ý đến miệng họ nói để bắt chước.

Minh: Thực ra TA có rất nhiều thành phần để cấu thành nên TA: từ vựng, ngữ âm hay là ngữ pháp chỉ là 1 phần thôi, bên cạnh đấy… thực ra TA chia làm 4 phần chính: nghe, nói, đọc, viết.Vậy để nâng cao trình độ TA của mình có rất nhiều cách nhg như như em vừa nói có 1 sô cách cụ thể, theo em học TA có gì khó?

Huệ: TA khó đối với sinh viên việt Nam, sinh viên VN ko có môi trường, thứ nhất học tập học để chỉ qua loa và học để qua kỳ, thứ 2 ko có môi trường để giao tiếp, đến bây giờ khi SV ra trường yêu cầu phải có trình độ TA em thấy thực tế văn bằng chỉ là đi mua, học thực chất văn bằng C TA nhưng phát âm chưa chắc đã chuẩn.

Minh: Ngoài ra em còn thấy khó khăn gì khi học TA?

Huệ: Trong lúc học TA em nghĩ ko có môi trường giao tiếp, SV cũng chưa ý thức được tầm quan trọng của việc học TA.

Minh: Khí học các bài tập cụ thể, học các bài trên lớp em thấy có gì khó?

Huệ: TA chuyên ngành em cũng chưa học nhg TA giao tiếp những cái học ở trường phổ thông em thấy nó cũng đơn giản.

Minh: Vậy như em vừa nói cũng có 1 số vấn đề để giải quyết những vấn đề ấy em thường làm như nào?

Huệ: Để giải quyết vấn đề khó khan ấy thứ nhất em dành thời gian học ở nhà, thứ 2 em thường hay lên mạng, đầu tiên để tra các từ vựng và học cách phát âm trên đó

Minh: Thế em thường làm như nào

Huệ: Nếu giáo viên tốt thì em sẽ làm thế nào, em hay để ý đến cách phát âm của họ, em nghe họ nói

Minh: em thường học ngữ âm như thế nào?

Huệ: Theo em đối với sinh viên Việt Nam, môi trường học tập, thứ nhất là học tập, thứ hai là học qua loa, thứ hai là không có môi trường để giao tiếp. Bây giờ yêu cầu SV có trình độ TA, nhiều người thực chất văn bằng hai TA.

Huệ: có thể học cách học sử dụng từ trong câu, còn thực tế là người nước ngoài cũng như người Việt Nam có rất nhiều cách để sắp xếp TA, có thể mình đọc thì không hiểu nhưng mà nhiều cũng thành quen.

Minh: em đã viết TA bao giờ chưa?

Huệ: Em thường viết trong lúc học ngữ pháp mình rồi viết thành topic,

Minh: topic em thường viết toppic gì?

Huệ: topic thường thực sự em không biết viết nhiều, chỉ trong sách thôi.

Minh: Hình như trong bài thi của mình cũng có viết.

Huệ: ở bài thi kỳ 1 thì có viết toppic nhg bài thi kỳ 2 thì không.

Minh: Với nghe thì em thường làm gì?

Huệ: Với kỹ năng nghe em thường copy các bài nghe vào điện thoại, các bài ở trong sách để nghe, hoặc là lên mạng đao các phần mềm có thể học TA trực tuyến.

Minh: em thường cop gì vào điện thoại?

Huệ: Em cop các bài topic ở trong sách giáo khoa, thường là em mượn đĩa của giáo viên về nghe, cop vào USB ,

Minh: cop như vậy em thường nghe như nào? nghe từng câu 1 hay là gì

Huệ: Đầu tiên là em nghe.. bởi vì các bài đọc nó có, thứ hai là nghe những lúc rảnh rỗi tập thể dục thì mình bật nghe, bởi vì em nói em nghe thường em có sẵn clíp.

Minh: em nghe có hay nhìn vào tapescript không?

Huệ: Có ạ Thực sự phải nghe và nhìn may ra em mới nhận biết được từ, còn để nghe không thì người nước ngoài họ nói rất khác người Việt Nam và phát âm gió

Minh: em vừa nghe và vừa phải nhìn, theo em nghĩ như vậy có tiến bộ được không?

Huệ: em nghĩ em cũng ko rõ nhg đấy là phương pháp học của em

Minh: Vậy sau khi nghe xong em thường làm gì tiếp hay chỉ nghe, nhìn bài đọc xong nghe?

Huệ: Thường là em nghe xong em nhìn vào bài tập mà họ yêu cầu, sau nghe là dễ hơn hay khó hơn? Thường là dễ hơn bởi vì những câu họ nói ra thường là những câu trả lời là những câu hỏi.

Minh: Giả sử nếu bảo học nói thì em sẽ làm gì để nói giỏi?

Huệ: em thường lên mạng có những phần mềm, họ ko nói liền từ nhưng họ chỉ dạy cách phát âm, họ thường đọc cho mình nghe và mình bắt chước lại, còn cơ hội giao tiếp thì mình thường ko có. mình nghe những câu người ta nói sau đó bắt chước lại. bắt chước cũng là 1 cái mà SV thường làm

Minh: Bắt chước thì mình có kiểu bắt chước về cách phát âm, bắt chước về cách nói, bắt chước về cách dùng từ…

Huệ: em thường bắt chước về cách phát âm, nghe nhiều bài họ phát âm rất hay.

Minh: Ngoài nghe và bắt chước ra thì em nghĩ còn có cách nào để phát triển TA.

Huệ: Nếu như có môi trường, giả sử có địa điểm khác như ở thủ đô thì SV có thể ra công viên có rất nhiều người nước ngoài, mình cũng chưa thực sự tin vào bản thân mình, ở trường mình cũng có 1 số SV người nước ngoài sang mình có thể gặp họ.

Minh: Thường SV nói học nói thì nên học người nước ngoài là cách tốt nhất.

Huệ: Vâng

Minh: Nói với người nước ngoài cũng là một cách để nâng cao trình độ TA nhưng thực chất thì ko phải như vậy chưa chắc đã là 1 cách tối ưu nhg đó cũng là 1 trong những cách để nâng cao trình độ nói của mình.

Huệ: Thực tế là em cũng khá lo lắng về trình độ TA của mình, em cũng muốn là trong kỳ tới này. Em rất tiếc là ko tham gia câu lạc bộ TA của trường mình.

Minh: Đọc em có hay rèn luyện kỹ năng đọc của mình ko? em thường làm gì để nâng cao kỹ năng đọc của mình?

Huệ: Kỹ năng đọc thì em có 1 quyển truyện cười, nó có cả TA và TV. mình có thể vừa đọc, thực sự mình cũng ko thể hiểu hết được.

Minh: Em thường đọc truyện về cái gì?

Huệ: em hay đọc truyện về cuộc sống.

Minh: đọc và xem họ gọi đấy là song ngữ đúng ko? vừa có phần đọc vừa có phần TV bên cạnh. Ngoài ra em còn làm gì nữa không?

Huệ: đối với em chỉ thế thôi nhưng mà em thấy như chị gái em, thực sự trình độ TA của chị khá tốt, thực tế chị ấy cũng chỉ là SV thôi, năm nay chị ấy mới tốt nghiệp nhưng từ năm thứ hai chị ấy đã có khả năng dịch các quyển sách, dịch Headway thì thường chị em dịch 1 quyển trong vòng 1 tháng, tháng rưỡi gì đấy nếu dịch chăm chỉ, các kinh nghiệm học TA của em cũng là do chị ấy chỉ.

Minh: Nếu với các bài đọc ở trong các quyển sách mình đã học New cutting Edge có rất nhiều bài đọc em thường làm những bài đọc ấy như thế nào?

Huệ: em thường đọc trước ở nhà, những từ nào chưa biết thì em tra từ điển,

Minh: thường 1 bài đọc kèm theo rất nhiều bài tập. Vậy để làm bài tập thuộc bài đọc ấy em thường làm gì?

Huệ: Em thường đọc dịch và hiểu, sau đấy em sẽ đọc phần câu hỏi, đọc trọng tâm.Bài đọc bình thường mình có thể đọc trọng tâm, đọc từ mới mình phải tra từ điển luôn.

Minh: Vậy có rất nhiều cách để học. Em đã bao giờ đọc và dịch ko?

Huệ: từ lúc học TA em có dịch , nhưng tốt nhất mình ko nên dịch làm gì, bởi vì dịch thành 1 thói quen, sau này giỏi rồi, khi mình nói TA lúc nào mình cũng nghĩ đến dịch , Trong quá trình học TA thì ko nên dịch, bước đầu tiên nghe song rồi nói có thể sai về ngữ pháp, về cách phát âm, quan trọng nhất là tạo cho người ta có phản xạ, nghĩ bằng TA và trả lời bằng TA chứ đừng quan tâm đến mình trả lời như này sẽ sai, với người học TA sai là đương nhiên, khi mình học mới trong đầu đừng nghĩ đến dịch làm gì, nói nghe song trả lời bằng TA đó là 1 trong những cách tốt nhất.

Minh: em có nhận xét gì về lớp TA của mình ko? khó, dễ, đông, về phương pháp học TA ….

Huệ: Đối với lớp TA hiện tại ko đông, thường SV ko có ý thức đi học, thời lượng lên lớp thì ít, khoảng chừng 3 tiết thì đã dành nửa tiết để điểm danh rồi, SV tham gia lên lớp học thì đa phần những SV ý thức tốt học tập trung ở bàn đầu có thể nghe giáo viên giảng được.

Minh: Em nghĩ số lượng SV 1 lớp bao nhiêu là vừa?

Huệ : SV 1 lớp khoảng từ 25 đến 30 người, còn nếu như ở ĐH cho phép khoảng 35 đến 40 người.

Minh: Cảm ơn em

APPENDIX D

A Sample Interview Script (The Translated Version)

Interviewer: Duong Duc Minh

Interviewees: TNUT2

Time: 14h00, 24th May 2011

Venue: Meeting room, Fundamental Sciences Faculty, TNUT.

Minh: Hello, **can you introduce something about yourself?**

Gia: My name's Gia, I am from Thai nguyen.

Minh: What is your major field of study?

Gia: I am studying in Civil Engineering Faculty

Minh: How many English classes are you studying this term?

Gia: 3 periods per week,

Minh: How many students are studying English with you this term in one class?

Gia: There are 69 students in my English class

Minh: Do you think your class is large, optimum, or small?

Gia: I think it's large, 69 students are too noisy for an English class.

Minh: Why do you think so?

Gia: I think a class of 20 to 30 students will have better quality than a class of 69. It is because, firstly, students are always noisy, and teachers cannot answer all students' questions in 45 minutes, so it is very difficult for students to understand the lessons.

Minh: Do you think 3 English periods/week is enough for you?

Gia: I personally think that, the university boards should add 3 more, it means that we should study English 6 periods / 2 times / week

Minh: Why do you think so?

Gia: We will have more class time in English atmosphere.

Minh: Anything more?

Gia: That's enough

Minh: How do you rate your English ability as high, moderate, or low?

Gia: I think I am a low level user, very low.

Minh: Why do you think so?

Gia: When I was in secondary school, I study English very well, but I don't know why when I am in university level, I study English very bad although I know that English is necessary for my job.

Minh: Do you think that you can learn English well?

Gia: Surely I can, if I have more time, I will learn English very well, and I can speak in English, too.

Minh: So, **what do you do to improve your English in general?**

Gia: Firstly, listening, I study vocabulary at first, and study in class with English teachers, and then I study English structures, from easiest to complex structures. Sometimes I listen to English songs, I may not understand some words but I still listen.

Minh: So, what do you do to listen well?

Gia: Before I go to class, I revise the previous lesson, prepare for new lesson. I also listen to some simple listening exercises, from easy to difficult, listen to disc …

Minh: What types of discs do you listen?

Gia: I listen to CDs, cassette tapes, or I listen to my mobile phone

Minh: What do you copy to your phone to listen/

Gia: Listening tasks.

Minh: When you listen to English songs, if you don't understand words, what did you do?

Gia: I listen to the melodies first, then I find lyrics on the internet, if I don't understand words or how they pronounced, I will look up in the dictionary.

Minh: Which dictionary do you use?

Gia: English – Vietnamese dictionary, I had one.

Minh: How do you improve your speaking skill?

Gia: I have to study structures first, then speak simple sentences, If I make mistakes, I will find somebody to help.

Minh: Who do you want to get help?

Gia: My friends and sometimes my English teachers if they have time.

Minh: Anything else?

Gia: Feel free to talk and talk freely, but the most important is that we must have a large amount of knowledge first, and then we will feel confident in speaking. In my opinion, if we want to speak fluently, we should speak to people who are more fluently and better in English than us, or learning from public communication course book. Sometimes, when I speak to my classmates and they can answer my questions, I feel that I am interested in continuing speaking. Or in our university, we have volunteer native language teachers; I tried to talk with them once a week, but still have a lot of difficulties.

Minh: What are your difficulties?

Gia: Listening to them is really difficult, their pronunciations, their sound make me confused and cannot understand.

Minh: So, what did you do to understand what they talk?

Gia: Listening through radio for native voice.

Minh: How about reading comprehension?

Gia: Firstly, I have to read the title to know the content of the reading text and guess what the content will be, but sometimes I cannot understand some words

Minh: So what do you do to know the meaning?

Gia: I learn new words every day, but very often, the next day I will forget. Before going to bed, I sometimes memoir the new word and write it on the wall (not real as I use my finger to point the shape on the wall).

Minh: Does it help?

Gia: I think it helps me a lot as I do it from the beginning of this term.

Minh: Did you do anything more?

Gia: Yes, I look up new words in dictionary; in addition, I do exercises that come along with the reading texts, as these exercises help me to understand the content of the reading text. When I do the exams I also read the questions first, then I find the key words in the questions and look for those words in the text. Sometimes if I cannot translate, I read sentences before and after that word and guess the meaning. I think it’s good to do exercises first then understand the text or vice versa.

Minh: How about writing? What do you do to improve your writing skill?

Gia: I write simple sentences, I don't make them too difficult then I ask my friends who is better than me in English to check errors for me, or if I write in school, I ask my teachers for helps.

Minh: Do you do anything else?

Gia: Internet also offers me a lot of chance to improve my writing skill.

Minh: What do you do on the net?

Gia: Go to a forum, or create a blog, write topics or sentences and then ask other users to check.

Minh: OK. **What do you find very difficult for you in learning English?**

Gia: Remembering vocabulary is always a problem. I don't have enough vocabulary, so it difficult to listen to others, and to transfer information to my friends or teachers. Furthermore, when listening to English songs, singers swallow some words that I am not familiar with.

Minh: So, **how do you usually solve the problem?**

Gia: I make a list of words that can be omitted when speaking and listening, and when listening, I try to understand a sentence or a word then guess the rest meanings.

Minh: How about other skills?

Gia: I usually make structure mistakes when speaking.

Minh: So what do you do to remember structures?

Gia: I learn by heart, then write and make similar sentences in my pocket notebook.

Minh: Where are your similar sentences?

Gia: From course books or reference books.

Minh: Anything else?

Gia: I feel not confident when speak in English.

Minh: So when you meet a foreigner on the road, how do you try to speak?

Gia: Language is not only by oral spoken, I can use my body language if I cannot find words to explain what I want, or I may use signs or real things.

Minh: OK, **do you have any comments about learning English in your present classroom**?

Gia: There are 69 students in my English class, but in fact about 10 students can learn English well. Others students always make noise or talk privately

Minh: How do your friends improve their English?

Gia: They take part in outside -university club, or pursue their certificate in some language centers.

Minh: Anything else?

Gia: I think that's all.

Minh: Thank you very much.

APPENDIX E

The Language Learning Strategy Questionnaire

Part 1: Personal Background

Please provide your personal information by putting a check mark (✓) in the appropriate box or writing your response where necessary.

1. Date: _____

2. Your gender: ☐ male ☐ female

3. Your institution: _____

4. Major of study areas: _____

4. Your ability in English: ☐ high ☐ moderate ☐ low

5. Number of students in your present English class : _____

6. According to (5), you think your English class is: ☐ large
☐ optimum (neither large nor small)
☐ small

Part 2: Language Learning Strategy Questionnaire

Instructions: The Language Learning Strategy Questionnaire is designed to gather information about how you, as a science-oriented university student, go about learning English. On the following page, you will find statements related to learning English. Please read each statement carefully and choose the response 'Yes' or 'No' which applies to you. If the response you choose is 'Yes', go on to the statements that follow and mark (✓) the response which best describes how often you actually do each activity when you are engaged in learning English. If the response you choose is 'No', proceed to the next part as instructed. Please also note that there are no correct or incorrect answers for your responses. This usually takes about 20-30 minutes to complete. The criteria for the responses are as follows:

Always or almost always means you ***always or almost always*** do the activities which is described in the statement.

Often means you do the activity which is described in the statement ***more than half the time***.

Sometimes means you do the activity which is described in the statement ***less than half the time***.

Never means you ***never*** do or do not do the activity which is described in the statement.

EXAMPLE

Do you try to improve you Listening skill?

Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Listening to English songs	√			
2. Watching English movies			√	

1. **Do you try to improve your Listening skill?** Yes. ☐ No. ☐
   If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Listening to English songs				
2. Listening to radio programs in English				
3. Watching television programs in English to help one familiar with the accents, tone of voice, and intonations				
4. Attending extra classes where native English speakers teach the English language				
5. Seeking an opportunity to listen to the English language				
6. Listening to the recording repetitively				
7. ☐ Other (please specify ……				

2. **Do you try to improve your Speaking skill?** Yes. ☐ No. ☐
If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Participating in discussions in groups or classes, or clubs				
2. Drilling with non-course books				
3. Seeking an opportunity to communicate with foreigners or native speakers of English				
4. Doing a part-time job at tour offices, hotels or restaurants				
5. Taking an extra speaking class at a language centre				
6. Talking to oneself				
7. Starting conversations with other people in English.				
8. Encouraging oneself to speak English even when one is afraid of making a mistake				
9. Asking an interlocutor to correct a mistake when speaking English				
10. ☐ Other (please specify ……				

3. **Do you try to improve your Reading skill?** Yes. ☐ No. ☐
If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Reading English brochures, leaflets or billboards				
2. Reading materials of one's major in English language				
3. Reading short stories or funny stories in English				
4. Reading instructions or manuals in English				
5. Looking for opportunities to read as much as possible in English				
6. ☐ Other (please specify ……				

4. Do you try to improve your Writing skill? Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Writing e-mail, diary, notes, messages, letters, or reports in English				
2. Practising writing sentences in English				
3. Comparing one's writing with friends'				
4. Seeking assistance from other people, such as teachers or friends				
5. Doing extra writing exercises from non-course books				
6. Having extra writing tutorials				
7. ☐ Other (please specify ……				

5. Do you try to improve your Pronunciation? Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Imitating native speakers				
2. Checking one's recorded pronunciation against the recordings				
3. Using a dictionary to check one's pronunciation				
4. Asking friends or teachers to help check the pronunciation				
5. Practising pronunciation in front of the mirror				
6. ☐ Other (please specify ……				

6. Do you try to enhance your knowledge about Vocabulary?

Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Memorizing words in English				
2. Learning words' formations or words' roots				
3. Using stickers or flash cards				
4. Translating English words into Vietnamese or Vietnamese words into English				

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
5. Grouping new vocabulary items according to their similarity in meanings or spellings				
6. Using new vocabulary items to converse with peers				
7. Playing word games				
8. ☐ Other (please specify ……				

7. Do you try to enhance your knowledge about Grammar?

Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Doing extra grammar exercises from non-course books				
2. Taking notes on grammar points				
3. Linking newly-learned grammar structures with previously-learned ones				
4. Asking the teacher for clarification when appropriate				
5. Having extra grammar tutorials				
6. ☐ Other (please specify ……				

8. Do you try to make use of media to enhance your general knowledge of English?

Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Using a mobile phone or a tape recorder or a compact disc				
2. Joining a forum or a blog or a chat room				
3. Making use of online resources, such as online dictionary or Google Translate				
4. Singing 'karaoke' in English				
5. Drilling with commercial software				
6. ☐ Other (please specify ……				

9. Do you try to enhance your general knowledge of English by not relying on media?

Yes. ☐ No. ☐

If 'No', proceed to 2. If 'Yes', how often do you…..?

Language Learning Strategy	Always or almost always	Often	Sometimes	Never
1. Creating oneself learning atmosphere in English				
2. Trying to find as many ways as one can to use English				
3. Asking teachers how to learn English effectively				
4. Trying to learn about the culture of native English speakers				
5. Practicing general English with family members or friends				
6. Noticing one's English mistakes and use that information				
7. ☐ Other (please specify ……				

APPENDIX F

Language Learning Strategy Questionaire (Vietnamese version)

Bảng Điều tra về Chiến lược học tiếng Anh[1]

Phần 1: Thông tin cá nhân

Xin vui lòng cung cấp thông tin cá nhân của bạn bằng cách đánh dấu (✓) vào ô thích hợp hoặc viết vào chỗ trống cho sẵn:

1. Ngày/tháng/năm: _____

2. Giới tính: ☐ Nam ☐ Nữ

3. Trường: _____

4. Chuyên ngành: _____

5. Khả năng tiếng Anh của bạn: ☐ Tốt/rất tốt ☐ Trung bình ☐ Yếu

6. Có bao nhiêu sinh viên trong lớp học tiếng Anh của bạn? _____

7. Theo bạn, lớp học tiếng Anh như vậy thì :

☐ Đông/quá đông ☐ Bình thường ☐ Ít

[1] LLSQ for the Doctoral Degree in ELS_vie version

Phần 2: Bảng câu hỏi về chiến lược học tiếng Anh

Hướng dẫn: Bảng câu hỏi về chiến lược học tiếng Anh được thiết kế để thu thập thông tin về các thủ thuật học tiếng Anh của sinh viên các ngành khoa học-kỹ thuật. Những trang sau sẽ cung cấp những câu hỏi về việc học tiếng Anh. Đề nghị hãy đọc kỹ câu hỏi và trả lời "Có" hoặc "Không" vào vị trí cho sẵn.

- Nếu câu trả lời của bạn là "Có", bạn hãy tiếp tục đánh dấu (✓) vào câu nào mô tả một cách đúng nhất mức độ thường xuyên của bạn đối với những thủ thuật đó
- Nếu câu trả lời của bạn là "Không", bạn hãy tiếp tục trả lời những câu còn lại.

Xin lưu ý, không có câu trả lời nào "đúng" hay "không đúng" và kết quả của bảng điều tra này sẽ trực tiếp giúp ích cho việc học tiếng Anh của sinh viên khối ngành khoa học – kỹ thuật. Đề nghị bạn hãy trả lời bảng câu hỏi một cách chân thực nhất.

1. Bạn có cố gắng nâng cao kỹ năng Nghe tiếng Anh của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 2.

Nếu câu trả lời là "Có", bạn có thường xuyên …….không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Nghe các bài hát tiếng Anh				
2. Nghe các chương trình phát thanh bằng tiếng Anh				
3. Xem chương trình truyền hình bằng tiếng Anh để cho quen với trọng âm, giai điệu và ngữ điệu				
4. Học thêm ở các lớp mà giáo viên là người bản ngữ				
5. Tìm mọi cơ hội để được nghe tiếng Anh				
6. Nghe đi nghe lại nhiều lần				
7. Hình thức khác (đề nghị viết rõ ……				

2. Bạn có cố gắng nâng cao <u>kỹ năng Nói tiếng Anh</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 3.

Nếu câu trả lời là "Có", bạn có thường xuyên ……không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Tham gia vào các hoạt động thảo luận theo nhóm, theo lớp hay trong các câu lạc bộ ngoại ngữ				
2. Tự mua sách về rèn luyện khả năng Nói				
3. Tìm cơ hội để giao tiếp với người nước ngoài hay người bản ngữ				
4. Tìm việc làm thêm ở các văn phòng du lịch, khách sạn hoặc nhà hàng …				
5. Đi học thêm ở các trung tâm ngoại ngữ				
6. Tự rèn luyện bằng cách nói một mình				
7. Bắt đầu cuộc nói chuyện với người khác bằng tiếng Anh				
8. Tự động viên mình nói tiếng Anh mà không sợ mắc lỗi				
9. Đề nghị người đối thoại sửa lỗi giúp khi nói tiếng Anh				
10. Hình thức khác (đề nghị viết rõ……				

3. Bạn có cố gắng nâng cao <u>kỹ năng Đọc tiếng Anh</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 4.

Nếu câu trả lời là "Có", bạn có thường xuyên ……không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Đọc các tờ rơi, tờ bướm quảng cáo, bảng thông báo … bằng tiếng Anh				
2. Đọc tài liệu chuyên ngành của mình bằng tiếng Anh				
3. Đọc các mẩu truyện ngắn hay chuyện cười bằng tiếng Anh				
4. Đọc các tờ/quyển hướng dẫn sử dụng bằng tiếng Anh				
5. Tìm cơ hội để đọc càng nhiều càng tốt bằng tiếng Anh				
6. Hình thức khác (đề nghị viết rõ ……				

4. Bạn có rèn luyện để nâng cao <u>kỹ năng Viết tiếng Anh</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 5.

Nếu câu trả lời là "Có", bạn có thường xuyên …… không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Viết e-mail, nhật ký, ghi chú, tin nhắn, thư, hay báo cáo bằng tiếng Anh				
2. Tập viết câu bằng tiếng Anh				
3. Kiểm tra chéo bài viết của mình với bài viết của bạn				
4. Nhờ thầy, cô giáo hay bạn bè giúp đỡ				
5. Mua sách luyện viết về để tự nâng cao				
6. Đi học thêm ở các lớp dạy viết				
7. Hình thức khác (đề nghị viết rõ ……				

5. Bạn có rèn luyện để nâng cao <u>khả năng phát âm</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 6.

Nếu câu trả lời là "Có", bạn có thường xuyên …….không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Bắt chước người bản ngữ				
2. Tự ghi âm phát âm của mình rồi so với băng, đĩa				
3. Dùng từ điển để học phát âm				
4. Nhờ bạn bè hoặc thầy,cô giáo giúp kiểm tra phát âm				
5. Tập phát âm trước gương				
6. Hình thức khác (đề nghị viết rõ ……				

6. Bạn có rèn luyện để nâng cao <u>vốn từ vựng</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 7.

Nếu câu trả lời là "Có", bạn có thường xuyên …… không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Học thuộc lòng từ và nghĩa của từ				
2. Học từ gốc và các hình thái khác của từ đó				
3. Viết ra giấy dán lên tường hay dùng thẻ học từ (flash cards)				
4. Dịch Anh – Việt hoặc Việt - Anh				
5. Nhóm các cụm từ với nhau theo nghĩa hoặc theo cách viết				
6. Sử dụng các từ mới học để nói chuyện với bạn bè				
7. Chơi các trò chơi về từ vựng trên máy tính				
8. Hình thức khác (đề nghị viết rõ ……				

7. Bạn có rèn luyện để nâng cao <u>kiến thức Ngữ pháp</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", hãy chuyển đến câu hỏi 8.

Nếu câu trả lời là "Có", bạn có thường xuyên ……. không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Mua sách ngữ pháp và làm tất cả các bài tập về ngữ pháp				
2. Ghi chú lại các chủ điểm ngữ pháp				
3. Liên kết các cấu trúc ngữ pháp mới học với những kiến thức cũ đã học				
4. Nhờ thầy, cô giáo giải thích rõ hơn				
5. Đi học thêm về ngữ pháp				
6. Hình thức khác (đề nghị viết rõ ……				

8. Bạn có tìm cách để nâng cao <u>kiến thức tổng quát về tiếng Anh</u> của mình không?

☐ Có ☐ Không

Nếu câu trả lời là "Không", bạn hãy dừng ở đây.

Nếu câu trả lời là "Có", bạn có thường xuyên ……không?

Thủ thuật học tiếng Anh	Luôn luôn	Thường xuyên	Thỉnh thoảng	Không bao giờ
1. Sử dụng điện thoại di động, băng, đĩa				
2. Tham gia vào các diễn đàn hoặc chatroom hay tạo blog				
3. Tận dụng các tiện ích trên mạng Internet như: cơ sở dữ liệu online, từ điển online, Google hay Google dịch …				
4. Hát karaoke bằng tiếng Anh				
5. Tự rèn luyện bằng các phần mềm học tiếng Anh				
6. Tự tạo cho mình môi trường học tiếng Anh				
7. Tìm cách để được sử dụng tiếng Anh càng nhiều càng tốt				
8. Hỏi giáo viên về các phương pháp học tiếng Anh				
9. Tìm hiểu về văn hóa của các nước nói tiếng Anh bản ngữ				
10. Thực hành tiếng Anh với bạn bè				
11. Ghi nhớ những lỗi mình đã mắc phải để tránh lặp lại				
12. Hình thức khác (đề nghị viết rõ ……				

Xin chân thành cảm ơn sự giúp đỡ của bạn !!!

APPENDIX G

Language Learning Attitudes Questionnaire

Instruction:

Fill out the following questionnaire, checking the box [✓] which best describes whether you AGREE or DISAGREE with each statement. This is for yourself not for anyone else, so answer as honestly as you can

	STATEMENT	AGREE	DISAGREE
1.	Learning a language may be important to my goals, but I don't expect it to be much fun.		
2.	I think that I could learn pretty much any language I really put my mind to, given the right circumstances.		
3.	I worry a lot about making mistakes.		
4.	I'm afraid people will laugh at me if I don't say things right.		
5.	I like getting to know people from other countries, in general.		
6.	I like to mimic other accents, and people say I do it well.		
7.	In school, if I didn't know an answer for sure, I'd sometimes answer out loud in class anyway.		
8.	I enjoy studying English.		
9.	English is important to me because I want to make friends with foreigners.		
10.	English is important to me because I want to study overseas.		
11.	I study English because being able to use English is important to me.		
12.	English is important to me because I might need it later for my job.		
13.	My language learning attitude is probably very high		
14.	I study English because all educated people can use English.		
15.	I like learning English because I want to read books, listen to music, or watch movies in English		
16.	I study English because I want to do well on the TOEFL, or TOEIC, or IELTS tests		
17.	I think I'm a good language learner		
18.	Learning English often makes me happy and gives me a feeling of success		
19.	I study English because it will make my parents or my teacher proud of me		
20.	I study English because I must study English		

Thank you very much for your cooperation

APPENDIX H

The Reading Proficiency Test for Science –oriented Students (RPT-SoS)

Instructions:

1. Please read the instructions carefully before doing each part of the test.
   (Hãy đọc kỹ yêu cầu trước khi làm mỗi phần của bài kiểm tra)
2. In this test, there are four reading passages:
   (Bài kiểm tra này gồm có 4 bài đọc)

   Reading Passage 1: Bathroom Innovation: New Products Use Technology for Health, Energy Saving

   Numbers: 1-11 25 minutes

   Reading Passage 2: History of Pendulum

   Numbers: 12-23 20 minutes

   Reading Passage 3: What's a Healthy Weight?

   Numbers: 24-39 20 minutes

   Reading Passage 4: Disc brakes

   Numbers: 40-50 20 minutes

   Total 50 items 1.25 hours
3. Please do not write anything on the test paper.
   (Không được viết vào đề kiểm tra)
4. Put the right answers on the answer sheet provided.
   (Chỉ viết câu trả lời vào phiếu trả lời)
5. Please try to do every item.
   (Hãy cố gắng hoàn thành tất cả các câu hỏi)
6. Please try to finish the test within 1.25 hours.
   (Thời gian làm bài: 85 phút)
7. If you have any questions, please ask the researcher before starting the test.
   (Nếu bạn có câu hỏi gì về cách làm bài, xin hãy hỏi trước khi làm bài)

Thank you very much for your co-operation and good luck

****

Questions 1-11

You are advised to spend about 25 minutes on Questions 1-11 which refer to Reading Passage 1 below.

Reading Passage One

BATHROOM INNOVATION: New Products Use Technology for Health, Energy Saving

A. Using the toilet is a necessary part of everyday life, like eating and sleeping. The role of the toilet has long been limited to flushing away waste, but that may be about to change with the recent introduction of a hi-tech bathroom system that can instantly gather, compile, and analyze data about a person's physical health. Another recent bathroom innovation is a highly advanced bathtub that has the potential to significantly reduce the amount of energy used to heat bathwater.

B. The Intelligent Toilet was jointly developed by Daiwa House Industry Co., Ltd. based in Osaka, and Toto Ltd., based in Kita-Kyushu. Daiwa House is marketing the product, which went on sale from April 2005, while Toto is manufacturing it. Through an array of built-in devices, the toilet instantly measures the user's blood pressure, weight, body fat, and urine sugar level.

C. While the user sits on the toilet, one of the devices gauges the urine sugar level, and another device built into a counter beside the toilet bowl measures blood pressure. The monitoring does not stop there. After the user gets off the toilet, a scale built into the floor measures their weight, while body fat is measured by a device built into the sink basin after the user washes their hands. Integrating all these instruments in a single place does away with the fuss of having to set up and operate separate devices whenever a person needs a health check.

D. The aim of putting all this technology into the Intelligent Toilet is to improve quality of life by keeping a continuous check on symptoms indicative of "lifestyle" diseases,

such as diabetes. Such diseases often go unnoticed until the patient goes to the doctor's for a checkup, by which time the symptoms may have progressed. The data collected by the Intelligent Toilet is easily managed. After the user's health data is recorded, it can be uploaded via a home network and stored in a personal computer. A health management application installed on the PC, called *Kenko Kanrikun* (Mr. Health Management), uses the data to create graphs showing monthly and annual changes and even offers advice on ways to improve the user's lifestyle. The system is comprehensive in managing the user's health. These hi-tech toilets cost from ¥380,000 ($3,454 at ¥110 to the dollar) to ¥562,000 ($5,109) more than conventional toilets.

Questions 1-6

Instructions: Find the appropriate word or words (**not more than 3 words**) with the same meaning as the definitions given below from the suggested paragraphs in the brackets for each item. Write your answers in the spaces numbered 1-6 on the answer sheet.

Hướng dẫn: *Hãy tìm từ hoặc cụm từ thích hợp (**không quá 3 từ**) trong đoạn văn trên có nghĩa tương đương với những câu dưới đây. Hãy viết câu trả lời vào chỗ trống được đánh số 1-6 trong phiếu trả lời*

1. A room in which there is a bath, a wash-basin, and sometimes a toilet (paragraph **A**)
2. Information that is produced or stored by a computer (paragraph **A**)
3. The activities that are involved in making people aware of a company's products, making sure that the products are available to be bought, etc. (paragraph **B**)
4. It is sent around the body by the heart and carries oxygen, it is red in colour (paragraph **B**)
5. A disease in which the body cannot control the level of sugar in the blood (paragraph **D**)
6. Somebody who receives medical treatment. (paragraph **D**)

Questions 7-11

Instructions: Write the letter of the paragraph (A, B, C, D,…) where you can find the information in order to answer each question in the spaces numbered 7-11 on the answer sheet.

Hướng dẫn: *Điền các chữ cái trước mỗi đoạn văn (A, B, C, D, ...) mà theo bạn có chứa những thông tin để trả lời những câu hỏi sau đây. Hãy viết câu trả lời vào những chỗ trống 7-11 trong phiếu trả lời.*

7. What are the advantages of the new development of a bathroom?
8. What is the base of the hi-tech bathtub made from?
9. How does the hi-tech toilet measure the user's blood pressure, weight, body fat, and urine sugar level?
10. Where was the hi-tech toilet developed?
11. How much do the hi-tech toilets cost?

Questions 12 - 23

You are advised to spend about 20 minutes on Questions 12- 23 which refer to Reading Passage 2 below.

Reading Passage Two

History of Pendulum

A. As recorded in the 4th century Chinese *Book of Later Han*, one of the earliest uses of the pendulum was in the seismometer device of the Han Dynasty (202 BC - 220 AD) scientist and inventor Zhang Heng (78-139). Its function was to sway and activate a series of levers after being disturbed by the tremor of an earthquake far away. After this was triggered, a small ball would fall out of the urn-shaped device into a metal toad's mouth below, signifying the cardinal direction of where the earthquake was located (and where government aid and assistance should be swiftly sent). An Egyptian scholar, Ibn Yunus, is known to have described an early pendulum in the 10th century.

B. Among his scientific studies, Galileo Galilei performed a number of observations of all the properties of pendula. His interest in the pendulum may have been sparked by looking at the swinging motion of a chandelier in the Pisa Cathedral. He began serious studies of the pendulum around 1602. Galileo noticed that period of the pendulum is independent of the bob mass or the amplitude of the swing. He also found a direct relationship between the square of the period and the length of the arm. The isochronism of the pendulum suggested a practical application for use as a metronome to aid musical students, and possibly for use in a clock.

C. Perhaps based upon the ideas of Galileo, in 1656 the Dutch scientist Christian Huygens patented a mechanical clock that employed a pendulum to regulate the movement. This approach proved much more accurate than previous time pieces, such as the hourglass. Following an illness, in 1665 Huygens made a curious observation about pendulum clocks. Two such clocks had been placed on his fireplace mantel, and he noted that they had acquired an opposing motion. That is, they were beating in unison but in the opposite direction—an anti-phase motion. Regardless of how the two clocks were adjusted, he found that they would eventually return to this state, thus making the first recorded observation of a coupled oscillator.

D. During his Académie des Sciences expedition to Cayenne, French Guiana in 1671, Jean Richer demonstrated that the periodicity of a pendulum was slower at Cayenne than at Paris. From this he deduced that the force of gravity was lower at Cayenne. Huygens reasoned that the centripetal force of the Earth's rotation modified the weight of the pendulum bob based on the latitude of the observer.

Questions 12-16

Instructions: Put the statements below in the correct chronological order according to the reading passage. Start with number 1 for the event that happened first. Write the appropriate numbers 1-5, in the spaces numbered 12-16 on the answer sheet.

Hướng dẫn: *Sắp xếp những câu sau đây theo thứ tự các đoạn văn bên trên, Bắt đầu với số 1 cho sự kiện xảy ra đầu tiên. Hãy viết các số thích hợp 1-5 vào các chỗ trống từ 12-16 trong phiếu trả lời.*

12. Zhang Heng was the scientist in the Han Dynasty who used the pendulum as the device to measure the strength of an earthquake.
13. Jean Richer found that the force of gravity at Cayenne lower that Paris because the periodicity of a pendulum was slower at Cayenne.
14. Christian Huygens employed Galileo's ideas to have a mechanical clock patented.
15. An early pendulum in the 10th century was described by Ibn Yunus.
16. Huygens observed two clocks and found that they had acquired an opposing motion.

Questions 17-23

Instructions: Decide whether the statements below support information in Reading Passage Two. In the spaces numbered 17-23, write:

Hướng dẫn: *Hãy xác định xem thông tin trong những câu sau có trong Reading Passage Two hay không? Trong phiếu trả lời từ 17-23, hãy viết:*

'Yes' nếu có thông tin trong bài đọc

'No' nếu thông tin đó không đúng với thông tin trong bài đọc

'Not given'. nếu không có thông tin trong bài đọc

17. Zhang Heng was the first people who used the pendulum.
18. The Dutch scientist used the ideas of Galileo about a pendulum to invent a mechanical clock in 1656.
19. A mechanical clock is the most accurate clock ever.
20. Based on his study, Jean Richer concluded that the force of gravity was lower at Cayenne than at Paris.
21. Both Galileo and Huygens were interested in the pendulum and both came from Denmark.

22. Huygens' theory of the pendulum was published in 1679.
23. One of the earliest uses of the pendulum was recorded in the book named *"Book of Later Han"*

Reading Passage Three

Questions 24-39

You are advised to spend about 20 minutes on Questions 24-39 which refer to Reading Passage 3 below.

What's a Healthy Weight?

A. Good health is about more than just your weight. It depends on many things, including your family's medical history, your genes, whether you smoke, the type of food you eat and how active you are.

B. A combination of factors determines our weight, and that's why it's difficult to set an exact ideal weight that applies to everyone. It's important to remember there's a range of healthy body weights. Aiming to keep within this means an end to aspiring to one magic weight you think you should be. Many people have a distorted perception of what constitutes a healthy body weight. We're surrounded by images of celebrities, many of whom are underweight.

Comparing yourself with these images isn't helpful. But comparing yourself to friends and family isn't that useful either, because as obesity becomes more common our perception of 'average' weight may in fact be too heavy.

C. It's important to make an objective assessment of your size. Looking at yourself in the mirror isn't a good way to assess whether you're a healthy weight.

D. How do I know if I'm a healthy weight?

There are a number of ways you can work out if you're within a healthy weight range. You need to get an accurate idea because it's easy to underestimate or overestimate your own weight.

E. Body mass index

You can check your body size using the body mass index (BMI), which assesses your weight in relation to your height. Work out your BMI with our calculator, available in both metric and imperial versions.

F. Waist circumference

Another method of assessing whether you're a healthy weight is to measure your waist. This gives an indication of how much fat is stored around your middle. Excess fat in this area increases your risk of heart disease and diabetes.

G. Body fat

You can measure the amount of fat in your body using scales designed for this purpose, often called body fat analysers. These pass a small, safe electrical signal through your body. Lean tissue, such as muscle, and blood contain water and act as conductors of the electrical signal, while fat resists it. The greater the resistance, the more body fat you have. Body fat is only one aspect of health. Your GP can advise whether additional measurements such as blood pressure, resting heart rate, blood cholesterol, and fat and glucose tests are necessary.

Questions 24-28

Instructions: Read each statement carefully. Based on the text, write '**T**' if the statement is true, and '**F**' if the statement is false. Write your answers in the spaces numbered 24-28 on the answer sheet.

Hướng dẫn: *Hãy đọc thật kỹ những câu sau. Dựa vào nội dung bài đọc, hãy điền vào phiếu trả lời từ 24-28 là* ***'T'*** *nếu thông tin đó đúng với nội dung bài đọc,* ***'F'*** *nếu câu đó không đúng với nội dung bài đọc.*

24. The family's medical history is one factor that can tell whether one's health is good or not.
25. A lot of fat stored around your waist increases your risk of heart disease.

26. Fat conducts electrical signal.
27. The body mass index (BMI) is the value used to describe the relationship of people's weight and height.
28. Body fat analysers are used to measure your body fat.

Questions 29-34

Instructions: Five sentences have been left out of Reading Passage Three. Each sentence is divided into ***Beginning of Sentence*** and ***End of Sentence***. Complete questions 29-34 adding a phrase from **A-E**. Write your answers in the spaces numbered 29-34 on the answer sheet. One choice can be used only **once**.

Hướng dẫn: *Năm câu sau được trích ra từ bài đọc Reading Passage Three. Mỗi câu được chia ra thành* ***Bắt đầu câu*** *và* ***Kết thúc câu****. Hãy hoàn thành các câu từ 29-34 trong phiếu trả lời bằng cách ghép phần Bắt đầu câu* ***29-34*** *với phần Kết thúc câu* ***A-E*** *sao cho thích hợp. Mỗi ý chỉ được sử dụng* ***1 lần****.*

Beginning of Sentence

29. Good health……
30. Waist circumference……..
31. Body mass index (BMI) ……
32. Additional measurements i.e. blood pressure, blood cholesterol ……...
33. A woman who is underweight …….
34. Changing the lifestyle…….

End of sentence

A. can be used to assess people's weight in relation to their height.

B. depends on many things, including your family's medical history, your genes, whether you smoke, the type of food you eat and how active you are.

C. strongly relates to the risk of heart disease and diabetes.

D. could help people to control their weight.

E. has the small waist circumference.

F. are necessary to ensure whether you are fat or not.

Questions 35-39

Instructions: Complete the following statements by writing **ONE** word from Reading Passage Three in the spaces numbered 35-39 on the answer sheet.

Hướng dẫn: *Điền vào mỗi chỗ trống sau* ***MỘT*** *từ thích hợp được lấy từ bài đọc Reading Passage Three. Viết* ***MỘT*** *từ đó vào phiếu trả lời câu hỏi từ 35-39.*

35. Good _____ depends on family's medical history, genes, and type of food.
36. Measuring people's waists is one _____ of assessing their healthy weight.
37. Your family's medical history, your genes, and the type of food you eat …. are _____ that determine our weight.
38. The amount of fat in people's bodies can be measured by using body fat _____.
39. The Body mass index helps you to have an _____ idea about your weight in relation to your height

Questions 40-50

Reading Passage Four

You are advised to spend about 20 minutes on Questions 40-50 which refer to Reading Passage 4 below.

Disc brake

A. The disc brake or disk brake is a device for slowing or stopping the rotation of a wheel while **it** is in motion. Brake discs (or *rotors* in U.S. English) are usually made of cast iron, but may in some cases, **they** can be made of composites such as reinforced carbon-carbon or ceramic-matrix composites. This is connected to the wheel and/or the axle. To stop the wheel, friction material in the form of brake pads (mounted on a device called a brake caliper) is forced mechanically, hydraulically, pneumatically or electromagnetically against both sides of the disc. Friction causes the disc and attached wheel to slow or stop. Brakes convert *motion* to

heat, and if the brakes get too hot, **they** become less effective, a phenomenon known as brake fade.

B. Disc-style brakes development and use began in England in the 1890s. The first caliper-type automobile disc brake was patented by Frederick William Lanchester in his Birmingham, UK factory in 1902 and used successfully on Lanchester cars. However, the limited choice of metals in this period, meant that **he** had to use copper as the braking medium acting on the disc. The poor state of the roads at this time, no more than dusty, rough tracks, meant that the copper wore quickly making the disc brake system non-viable (as recorded in The Lanchester Legacy). It took another half century for his innovation to be widely adopted.

C. Compared to drum brakes, disc brakes offer better stopping performance, because the disc is more readily cooled. As a consequence discs are less prone to the "brake fade" caused when brake components overheat; and disc brakes recover more quickly from immersion (wet brakes are less effective). A drum brake will have at least one leading shoe, **which** gives a servo-effect. By contrast, a disc brake has no self-servo effect and its braking force is always proportional to the pressure placed on the brake pad by the braking system via any brake servo, braking pedal or lever.

D. Many early implementations for *automobiles* located the brakes on the inboard side of the driveshaft, near the differential, but most brakes today are located inside the road wheels.

Questions 40-45

Instructions: Choose the best answer A, B, C or D then write your answers in the spaces numbered 40-45 on the answer sheet.

Hướng dẫn: *Chọn phương án trả lời đúng nhất A, B, C hoặc D sau đó viết phương án trả lời đó vào phiếu trả lời từ 40-45)*

40. What does the passage mainly mention?

(A) The first caliper-type automobile disc brake (B) The development of disc brake

(C) The comparison of disc brake and drum brake (D) How disc brake works

41. All the following are mentioned in the passage as materials used to make disc brake EXCEPT

    (A) reinforced carbon-carbon (B) cast iron

    (C) carbon steel (D) ceramic-matrix composites

42. The word "*motion*" in line 6 is closest meaning to

    (A) Material (B) wheel (C) movement (D) Energy

43. According to paragraph A, brake pads are mounted on

    (A) wheels (B) brake pedals (C) caliper (D) axles

44. It can be inferred from the second paragraph (paragraph B) Fredrick William Lanchester's innovation was widely adopted in the

    (A) 1890s (B) 1930s (C) 1940s (D) 1950s

45. The word "*automobiles*" in paragraph D could best be replaced by

    (A) motor vehicles (B) cars (C) trucks (D) buses

Questions 46-50

Instructions: Write the word or words each pronoun refers to in the spaces numbered 46-50 on the answer sheet.

Hướng dẫn*: Những đại từ hay đại từ quan hệ sau thay thế cho những danh từ nào trong đoạn văn tương ứng. Viết danh từ tương ứng đó vào phiếu trả lời từ 46-50.*

46. '**it**' (paragraph **A**) refers to _____

47. **"they"** (paragraph **A**-line 2) refers to _____

48. "**they**" (paragraph **A**-line 7) refers to _____

49. '**he**' (paragraph **B**) refers to _____

50. '**which**' (paragraph **C**) refers to _____

---The End ---

ANSWER SHEET

The Proficiency Test in English for Science and Technology Students

--- ✍📖✍---

Name: ……..……... Student ID: …….……

Class:……...…

Reading Passage One: Bathroom Innovation: New Products Use Technology for Health, Energy Saving

Questions 1-17

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____

Reading Passage Two: History of Pendulum

Questions 12 - 23

12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____

Reading Passage Three: What's a Healthy Weight?

Questions 24-39

24 _____
25 _____
26 _____
27 _____
28 _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____
38. _____
39. _____

Reading Passage Four: Disc brakes

Questions 40-50

40 _____
41 _____
42 _____
43 _____
44 _____
45 _____
46. _____
47. _____
48. _____
49. _____
50. _____

CURRICULUM VITAE

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