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ภาษาต่างประเทศและไม่ใช่วิชาเอกภาษาอังกฤษ

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**LISTENING STRATEGIES OF NON-ENGLISH
MAJOR EFL STUDENTS**

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A Thesis Submitted in Partial Fulfillment of the Requirements for

the Degree of Master of Arts in English Language Studies

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LISTENING STRATEGIES OF NON-ENGLISH MAJOR

EFL STUDENTS

Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for a Master's Degree.

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งานวิจัยนี้ศึกษาพฤติกรรมการฟังของนักศึกษาที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ และไม่ใช่เอกวิชาภาษาอังกฤษ ณ มหาวิทยาลัยไคลี่ (Kaili University) ในประเทศจีน งานวิจัยมีวัตถุประสงค์เพื่อ ศึกษาความคิดเห็นของนักศึกษาจีนที่ไม่ได้เอกภาษาอังกฤษต่อการใช้กลยุทธ์การฟังเพื่อความเข้าใจ การใช้กลยุทธ์การฟังระหว่างนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษสูงและนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษต่ำจากวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์ และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ การใช้กลยุทธ์การฟังระหว่างนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษสูงจากจากวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ และระหว่างนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษต่ำจากสาขาวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ ผู้ร่วมการทดลองเป็นนักศึกษามหาวิทยาลัยปี 3 ที่เรียนวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ และถูกแบ่งกลุ่มตามความสามารถในการฟัง ข้อมูลถูกเก็บโดยแบบสอบถามและการสัมภาษณ์แบบกึ่งโครงสร้าง ผลการวิจัยพบว่า นักศึกษารู้สึกดีต่อการใช้กลยุทธ์การฟังเพื่อความเข้าใจ มีความแตกต่างอย่างมีนัยสำคัญซึ่งมีความสัมพันธ์กับระดับความสามารถในการฟังและสาขาวิชาเอกของนักศึกษา มีความแตกต่างอย่างมีนัยสำคัญระหว่างนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษสูงจากวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ และระหว่างนักศึกษาที่มีความสามารถในการฟังภาษาอังกฤษต่ำจากวิชาเอกที่เกี่ยวข้องกับวิทยาศาสตร์และวิชาเอกที่ไม่เกี่ยวข้องกับวิทยาศาสตร์ ผลงานวิจัยนี้มีส่วนช่วยอย่างมากต่อการสอนการฟังภาษาอังกฤษของครูที่สอนภาษาอังกฤษในฐานะภาษาต่างประเทศ และช่วยในการพัฒนาการฟังของนักศึกษาที่เรียนภาษาอังกฤษในฐานะภาษาต่างประเทศ

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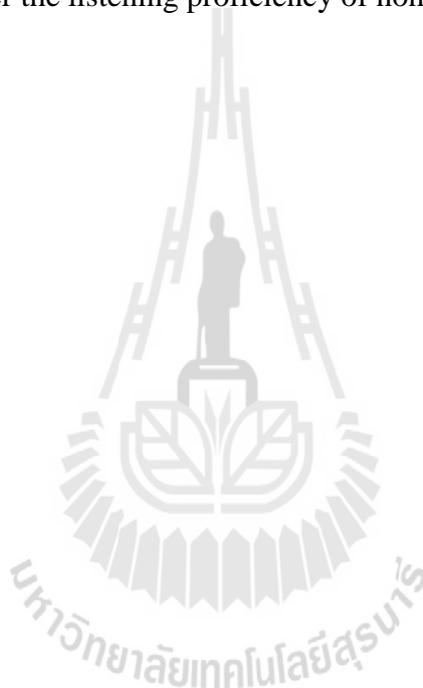
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LISTENING STRATEGIES/CHINESE UNIVERSITY NON-ENGLISH

MAJORS/LISTENING PROFICIENCY LEVELS

This research study focused on the investigation into the listening strategies of non-English majors EFL students at Kaili University in China. It aimed to examine the opinions of non-English majors towards the use of listening strategies in listening comprehension, explored the use of listening strategies between high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented, investigated the use of listening strategies between high listening proficiency students majoring in science-oriented and non-science-oriented, and looked at the use of listening strategies between low listening proficiency students majoring in science-oriented and non-science-oriented. All subjects are third-year university students from science-oriented and non-science-oriented fields and they were grouped into high and low listening proficiency levels. The data were collected by means of a questionnaire and a semi-structured interview. The results indicated that the students had favorable attitudes towards the use of listening strategies on listening comprehension. The significant differences were found in relation to the students' listening proficiency

levels and their fields of study. Furthermore, there were significant differences between high listening proficiency students majoring in science-oriented and non-science-oriented, and there were significant differences between low listening proficiency students majoring in science-oriented and non-science-oriented. The results of this study could be a great help in guiding teaching of listening in English to EFL teachers and better the listening proficiency of non-English majors EFL students.



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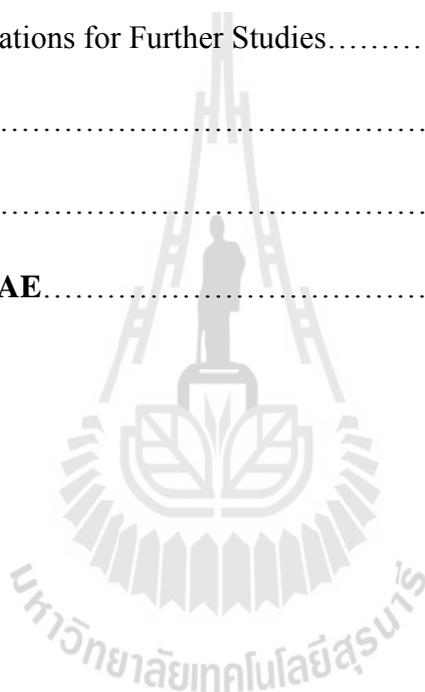
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LIST OF ABBREVIATIONS

CE.....	College English
CET 4.....	College English Test Band Four
EFL.....	English as a Foreign Language
ELT.....	English Language Teaching
ESL.....	English as Second Language
FL.....	Foreign Language
HLPS.....	High Listening Proficiency Students
IAS.....	Item Analysis
IOC.....	Item Objective Congruence Index
KU.....	Kaili University
LC.....	Listening Comprehension
L2.....	Second language
LLS.....	Language Learning Strategies
LLPS.....	Low Listening Proficiency Students
LS.....	Listening Strategies
MOE.....	Ministry of Education of PRC
NEMs.....	Non-English Majors
NSO.....	Non-science-Oriented
SO.....	Science-Oriented
SPSS.....	Statistical Package for Social Science

CHAPTER 1

INTRODUCTION

This chapter gives a brief introduction to the study which focuses on listening strategies of EFL students majoring in non-English. It covers background of the study, statement of the problem, the purposes of the study, research questions, significance of the study, limitations of the study, definitions of terms and summary of this chapter.

1.1 Background

English, as we all know, is the world most widely used language, and also one of the main international languages in the world. With the rapid development of science and technology in China, a large number of applied talents in foreign languages are in demanding to accelerate the modernization. In the Chinese English as a foreign language (EFL) context, although most of Chinese university students learn English from primary school to university for almost 8 years, the English proficiency of these students as a whole still needs improving (Li, 1996). It is common that the non-English majors (NEMs) graduate from university with the problems which have been described as deaf-and-dumb English (Zhang, 2005): the typical problems which are most claimed by the students as they cannot understand what the English speakers say and can hardly communicate with the foreigners in English. There might be two main reasons of these problems. The first reason is lacking of adequate English input. The students hardly have opportunities to listen to

English both in and outside of the classroom. The other reason is due to the traditional English education in the classroom. Traditional English teaching in China pays more attention to grammar (Yang, 2005), reading and writing rather than listening and speaking. Moreover, students also seldom realize they must be active in their listening comprehension (Vandergrift, 2003). Thus when the non-English majors graduate from university, they are still poor in English, especially in listening even though they have already learned English formally in school for almost 8 years on the average.

In order to solve the problem, the Ministry of Education of the People's Republic of China (MOE) launched a new reform of English teaching by issuing a series of curriculum requirements for primary schools, middle schools and universities. The new "College English Curriculum Requirements" (MOE, 2004) is one of them. It emphasizes that the teaching objectives of college English curriculum is to cultivate university students' practical application ability of English, especially the ability of listening. Thus the development of listening becomes the prime concern to language teachers. Actually, several researchers (Byrnes, 1984; Feyten, 1991; Oxford, 1993) have demonstrated the crucial role of listening in language acquisition. And also, as for the important role in daily communication, Oxford (1993) points out that of the time an individual is engaged in communication, among which 9% is used to write, 16% is used to read, 30% is used to speak and at least 45% is used to listen. Therefore, listening deserves much attention in second language learning and teaching.

Previously, the focus of studies concerning second language teaching and learning were mainly to investigate the teachers' teaching behavior rather than students' learning behavior. But now, with the development of cognitive psychology, the research focus has been shifted from teachers to learners, such as learner's learning style,

learning strategies or learning motivation, among which learning strategies are emphasized in language learning and teaching. Increasing interests in doing research on language learning strategies (LLS) has been widely conducted by many researchers (O'Malley & Chamot, 1990; Brown, 1991; Bacon, 1992; Vandergrift, 1996; Graham, 1997; Macaro, 2001; Goh, 2002). Likewise, Brown (1991) states “strategic investment of learners in their own linguistic destinies not only makes them better language learners; it also gives them a more rewarding language learning experience” (p. 256).

In a foreign language environment, listening is considered more difficult for learners (Graham, 2006). In China, students learn the language mostly through formal instruction, which means that their exposure to authentic input is typically limited and trying to comprehend it can be painful and frustrating (Chang, 2004). Research study demonstrates that listeners are engaged in a variety of active mental process in comprehending the oral input. However, there is rarely a perfect match between input and knowledge. Gaps in comprehension occur and special efforts to facilitate comprehension are required (O'Malley et al., 1985). ‘Special efforts’ here refers to listening strategies (LS). In this sense, LS deserve teachers and learners to nurture and learn. As Vandergrift (1996) claims: “ use of effective listening strategies can not only help students capitalize on the language input they are receiving, but also help teachers facilitate the learning process; this knowledge can provide a more solid theoretical base for classroom teaching practices” (p.201). To sum up, the studies of listening strategies, which aid in clarifying the process of listening and help listeners capitalize on the language input they are receiving, are undoubtedly of great significance. Therefore, the investigation of listening strategies used by different students merits great research attention.

1.2 General Statement of the Problem

1.2.1 College English (CE) and College English Test Band Four (CET 4)

College English in China refers to a compulsory English course for non-English majors in universities. CE is taught to non-English majors at tertiary level where this subject is learnt in the first two years as basic stage English. In the third and fourth years English is set as an elective subject. In the present context -- Kaili University (KU), non-English majors are all required to take CE as a core course in the first two years of their university study. Along with the university expansion of enrollment, the increasing numbers of the students grow very fast, especially the number of non-English majors. However, CE teachers are in short supply since the expansion of enrollment at Kaili University. It is common that one English teacher teaches different majors. They also tend to use the same teaching materials with the same teaching method. Moreover, the majority of the teachers usually use grammar translation method to teach English. Thus, for the non-English majors, they seldom have chance to do the listening practice in class. In this sense, using of listening strategies for them might be incidental or optional.

After finishing two-year college English study, the non-English majors are required to take College English Test Band Four (CET 4), which is regarded as the main identification method of students' English ability. CET 4 is held twice a year in June and December. It consists of six main parts which include writing, reading, listening, grammar, cloze and translation. Many changes have been done since the reform of CET 4 held by MOE. The main change is that the proportion of listening in CET 4 was raised from 20% to 35%. In this case, doing well or not in the listening part can affect the results of the test. However, the score of their listening part is one

of the lowest score among six parts, and the final marks of these students who are poor in listening are also very low (Jiang, G. D., Personal communication, May 15, 2011). Besides, the students complain that the listening part is the most difficult part to deal with in the test. Therefore, investigating the status of their strategy use and helping them with the listening strategies provided in the study will be beneficial for the students to improve their listening ability and English proficiency. Although many studies have been conducted by the previous researchers on learning strategies, not many of them focus on listening strategies in China, especially with the studies of listening strategies used by different university non-English majors. Therefore, the present study will shed light on it.

1.2.2 Previous Research studies on LS

Since the important role of listening in foreign language (FL)/ second language (L2) is acknowledged, studies on listening have been a hot issue in the field of FL/ L2 acquisition. It is argued that strategy use is one of the main and effective means to enhance listeners' listening comprehension (LC). There is a rich and varied body of research in the area of learning strategies used in listening comprehension in foreign countries (e.g. Rost & Ross, 1991; Bacon, 1992; Vandergrift, 1996, 1997, 2003; Goh, 1998, 2002). In order to investigate the general learning strategies used in listening comprehension by different students, researchers used different methods to conduct their research studies and in different contexts with different subjects, having taken different perspectives. However, after reviewing the literature of listening strategy, the studies have been made mainly on the subjects with different gender and language proficiency. There seems to be no research study conducted on the subjects with the students' academic fields of study.

As for the listening strategy research in China, only a few studies have been conducted by the researchers (e.g. Jiang, 1994; Liu, 1996; Wang, 2002; Shi, 2004). Shi (2004) conducted a research study to investigate what and how the non-English majors employ listening comprehension strategies in the compound dictation test and the relationship between their strategies and outcomes. The research results showed that successful listening requires various strategies, especially those key strategies, and the less efficient students mainly use bottom-up strategies. Liu (1996) conducted a case study to investigate the LS used by seven adult students with intermediate-level of English proficiency. The results of the study showed that there are differences in strategy use between these seven adult students in type and frequency. However, at present, in China, there have been few studies on listening strategies of university EFL non-English majors, especially with the variable of students' different listening proficiency levels in their academic fields of study. Besides, no clear idea is presented about the use of listening strategies of non-English major university students and their general attitudes on listening strategies. Therefore, before we can hope to improve learners' listening ability, we need to know what strategies the non-English majors use and what attitudes of listening strategies the non-English majors hold. Moreover, there have been few research studies on comparison of listening strategies use by different listening proficiency non-English majors in China. So, it would be beneficial to explore and conduct the study in this area.

1.3 Purposes of the Study

According to the stated problem in 1.2, the purposes of this study are as follows:

1) To find out the general attitudes of the university non-English majors towards applying listening strategies in listening comprehension.

2) To explore if there are any differences in listening strategy use between high and low listening proficiency university non-English majors majoring in science-oriented and non-science-oriented.

3) To explore if there are any differences in listening strategy use between high listening proficiency students majoring in science-oriented and non-science-oriented, and between low listening proficiency students majoring in science-oriented and non-science-oriented.

1.4 Research Questions

With the purposes stated above, the following research questions are put forward:

1) What are the general attitudes of the university non-English majors towards applying listening strategies in listening comprehension?

2) Do high and low listening proficiency students majoring in science-oriented and non-science-oriented use listening strategies differently? If yes, what are they?

3) Do high listening proficiency students majoring in science-oriented and non-science-oriented use LS differently? If yes, what are they? Do low listening proficiency students majoring in science-oriented and non-science-oriented use LS differently? If yes, what are they?

1.5 Significance of the Study

This study made an attempt to help the teachers to understand strategies the non-English majors used in listening comprehension, and to help the non-English majors develop their awareness of using listening strategies in listening comprehension.

For the teachers, it would be rewarding to understand the frequency of different non-English majors' strategy use in listening comprehension before they can hope to encourage and assist students to improve their listening comprehension. From this study, it is hoped that teachers may find some references to promote their listening instruction quality for non-English majors, especially for those who teach English with different majors in the classroom.

For the non-English majors, it is argued that the students who are poor in listening practice and know few listening strategies would fail in coping with normal spoken English. In this sense, helping the non-English majors to cultivate their awareness of using learning strategies in English listening comprehension would be of great significance in the present study. Moreover, it is hoped that this study would help students who are experiencing difficulty in learning a second language become better language learners, helping them become more effective and independent in language study.

1.6 Limitations of the Study

The present study has some limitations as follows:

Firstly, the subjects of present study were limited to the non-English majors in China, It might not be considered as representatives of other students.

Secondly, the purpose of the study was to explore the different uses of LS by different non-English majors. The present study only focused on O'Malley and Chamot's and Vandergrift's classification of LS. Therefore, the research did not consider other classification of LS to analyze the use of LS by the non-English majors.

1.7 Definitions of Terms

The following terms are used in this study.

1.7.1 EFL Non-English Majors

In the present study, EFL non-English majors refer to the university students majoring in non-English in Kaili University, Guizhou Province, People's Republic of China.

1.7.2 Science-oriented and Non-science-oriented students

Science-oriented students in this study refer to the students majoring in Mathematics and Physics, Computer and Information Science, Biology and Environment at Kaili University.

Non-science-oriented students in this study refer to the students majoring in Humanities, Arts and Education at Kaili University.

1.7.3 Listening strategies (LS)

Listening strategies in the present study refer to the conscious, deliberate and particular listening behavior or thoughts that listeners employ to comprehend the English oral texts to make them to be more successful in their listening comprehension process.

1.8 Summary

This chapter provided a brief introduction of the current study. Firstly, it started with the background of the study. It, then, discussed the general problem, the purposes of the study, the research questions, the significance and the limitations of the study. Some explanations of useful terms were also provided in this chapter respectively. It ended with a summary. In the next chapter, the theoretical framework and a review of related literature on listening strategies will be presented.



CHAPTER 2

LITERATURE REVIEW

This chapter introduces the theoretical framework for the present study and the relevant research studies related to listening strategies. It consists of two main sections: the first section presents the theoretical foundations of listening comprehension, the second section discusses definitions and classifications of listening strategies and reviews the research studies on listening strategies.

2.1 Theoretical foundations of listening comprehension

In order to have a clear concept of listening comprehension, the importance, the nature, the process, the models and the problems of listening comprehension are presented.

2.1.1 The importance of listening for L2/FL learning

The critical role of listening in language learning is widely acknowledged (e.g. Byrnes, 1984; Feyten, 1991; Oxford, 1993). Listening, as one of the language inputs, is vital in the language classroom, especially, in English as foreign language context. In order to know exactly the relationship between listening skill and language proficiency, Feyten (1991) conducted a study to examine whether more attention needs to be paid to listening as a necessary skill in the diagnosing and preparation of foreign language students and whether listening skill is a good predictor of language achievement. The results of the study suggest that there is a positive relationship

between listening ability and foreign language acquisition. More specifically, it is found that listening ability not only has a significant relationship with overall FL proficiency, but also with FL listening comprehension skills, and FL oral proficiency skills (Feyten, 1991). Moreover, Oxford (1993) maintains that listening, the most fundamental language skill, can be taught and that it should be a clear focus of classroom instruction.

2.1.2 The nature of listening comprehension

Since the definitions of listening have not reached the consensus, we need to take a look at the nature of listening to help us understand it. Listening has long been regarded as the ‘neglected’, ‘overlooked’, or ‘taken for granted’ skill in English language teaching (ELT) literature under the influence of behaviorism (Hedge, 2000). But with the rapid development of cognitive psychology, researchers and scholars begin to consider that listening comprehension is no longer a passive and static receptive process but a more active one. Many researchers (Anderson, 1985; O’Malley et al., 1989, Vandergrift, 1999) also presented the nature of listening comprehension via their valuable research studies. Cognitive psychologist Anderson (1985) believes that listening comprehension is an active process in which individuals focus on selected aspects of aural input, construct meaning from passages, and relate what they hear to existing knowledge to fulfill the task requirement. Moreover, in Vandergrift’s (1999) point of view, listening comprehension is a complex, active process in which the listeners must discriminate between sounds, understand vocabulary and grammatical structures, interpret stress and intonation, retain what is gathered in all of the above, and interpret it within the immediate as well as the larger socio-cultural context of the utterance. In this sense, it is clear that listening is no

longer a passive skill, but an active, complex, and constructive process that listeners must use a wider variety of knowledge to interpret it.

2.1.3 The process of listening comprehension

Anderson (1983) differentiates listening comprehension into three-stage processes: perception, parsing and utilization. In the perception phase, listeners focus on the sounds of the oral text and store them in short-term memory. Because the capacity of short-term memory is limited, listeners can only hold word sequences for a few seconds. The load on short-term memory is heavy as listeners try to hold various parts of the message in mind while inferring meaning and deciding what is necessary to retain (Hedge, 2000). Thus, focus selectively on the key words will facilitate comprehension in this phase. In the parsing phase, words and phrases are used to construct meaningful mental representations. Listeners decode the information into meaningful units that can be stored in short-term memory with their knowledge of language, topic and other factors. The meaningful units are usually generated by the listeners with simple representations of the oral text. In the utilization phase, listeners relate what they hear with what they already know in long-term memory to help them achieve comprehension.

2.1.4 The models of listening comprehension

The comprehension of listening is usually classified into various processing models, in which listeners apply their knowledge to interpret the rapid oral speech. Some of the models will be reviewed in the following parts:

2.1.4.1 Bottom-up, Top-down and Interactive models

O'Malley and Chamot (1990) defined that bottom-up model focus on linguistic features and encourage learners to analyze individual words for their

meaning or grammatical structures before accumulating the meanings to form propositions. In bottom-up model, individual listeners pay much attention to the meanings of the words as well as the grammatical characteristics. At the same time, listener uses “whatever clues are available to infer meaning from the developing speech” (Hedge, 2000 p.30). The clues here refer to several kinds of strategies. By analyzing this model, the problems are revealed. According to O’Malley and Chamot (1990), there are three types of shortcomings of this model. First, the meaning of word depends on the context. So, it is easy for listeners to misunderstand the word in isolation. Second, if the context is provided, listeners can narrow the range of possible meanings that must be explored in long-term memory. Thus lexical access will be much faster. However, if the listener cannot take advantages of the context, the comprehending process will take much more time. Third, the bottom-up processing can be expected to have inefficiencies since individuals who do make predictions about text meaning tend to have greater comprehension.

On the contrary, top-down model focus on the overall meaning of phrases and sentences and encourage learners to make use of real world schematic knowledge to develop expectations of text meaning (O’Malley & Chamot, 1990). In this model, listeners make use of the background knowledge in understanding the meaning of a message. The active listeners will use all relevant background knowledge namely knowledge of the physical context of the utterance, knowledge of the speaker, and knowledge of the topic. Armed with this activated knowledge, the listeners monitor the incoming acoustic signal, which will simultaneously shape and conform his expectations (Brown, 1990). This model emphasizes the reconstruction of meaning rather than the decoding of the individual language forms. Listeners firstly

use their own prior knowledge to help them understand the incoming data. However, the shortcoming of top-down model is that it only emphasizes the listeners' background knowledge, and it pays no attention to the individual words or phrases of the listening materials.

The above two models have their advantages and shortcomings as well. Only using one type of them may not achieve the successful listening comprehension. Many researchers such as Field (2004) indicates that difficulty in the early stages of second language listening is sometimes said to derive from heavy reliance upon bottom-up information. Less experienced listeners supposedly focus so much attention upon identifying sounds and words that they have no time or mental capacity left for building higher-level units of meaning. Top-down model only focus on listeners' background knowledge, while neglecting the use of lexical and grammatical characteristics of listening materials. So, interactive model is proposed. In these models, "linguistic information, contextual clues, and prior knowledge interact to enable comprehension" (Hedge, 2000, p35). It is generally agreed that listening requires a combination of both forms of processing (Graham, 2006). In sum, in order to achieve the best comprehension, listeners are encouraged to employ both bottom-up and top-down models in listening activities.

2.1.4.2 SIER model

Steil, Barker and Watson (1983) developed a model named SIER model in short. They divided listening comprehension into four activities: sensing -- S, interpreting -- I, evaluating -- E, and responding -- R. Sensing refers to taking in messages verbally and nonverbally. Interpreting refers to the process of understanding. Evaluating involves sorting facts from opinions and agreeing or disagreeing with the

speaker. Responding refers to the use of verbal and nonverbal cues in reaction to a message. This model emphasizes more about the response of listening rather than the process of listening. In explaining the process of listening, this model shows that firstly individuals must sense a stimulus; secondly interpretation is assigned to the incoming data; thirdly listener carefully evaluates the message content, forming evaluation about what he/she heard; and finally, the listener makes a response. This model is usually used as a diagnostic or a planning tool by the listening teachers.

2.1.4.3 HURIER model

Brownell (1986) concluded this model with six components: hearing message (H), understanding message (U), remembering messages (R), interpreting messages (I), evaluating messages (E) and responding to messages (R). It seeks to help both listeners and instructors to understand the total listening process. The six components of this model can be described in the following part. For *Hearing Messages*, listeners learn to concentrate on the message, and prepare for various listening situations. For *Understanding Messages*, listeners learn to distinguish main ideas from information. For *Remembering Messages*, listeners increase their understanding of short and long-term memory, so they can store and retrieve information more effectively. For *Interpreting Messages*, listeners learn to understand the speaker by recognizing the speaker variables. For *Evaluating Messages*, listeners focus on evaluating the speaker's logic and reasoning, and identify emotional appeals. For *Responding to Messages*, listeners appreciate the importance of their response and consider the response styles. In Brownell's (1986) point of view, the more we know about the listening process, the better we will be able to identify both our listening requirements and the listening problems we encounter.

The above models can be seen as the most popular models of explaining how listening is processed by the listeners. Reviewing these models may help us to understand in which way the listener processes the oral data.

2.1.5 Factors influencing listening comprehension

The factors that may influence second language (L2) listening comprehension include: text characteristics (variation in a listening passage/text or associated visual support); interlocutor characteristics (variation in the speaker's personal characteristics); task characteristics (variation in the purpose for listening and associated responses); listener characteristics (variation in the listener's personal characteristics); and process characteristics (variation in the listener's cognitive activities and in the nature of the interaction between speaker and listener) (Rubin, 1994). In terms of listener factor, Rubin (1994) claims that listener characteristics appear to have considerable impacts on an individual's listening comprehension. Thus, listeners' factor will be the focus in the present study.

It is known that learners vary considerably in both the overall frequency with which they employ strategies and also the particular types of strategies they use (Ellis, 1994). There are some variables affecting the choice of strategies used. Oxford and Nyikos (1989) reviewed altogether fourteen variables related to the choice of language learning strategies and found that many of these factors, such as language learning level, national origin, field of study, and language teaching methods, have been definitively shown to be strongly related to language learners' choice of strategies. However, at present there are few studies of listening strategy use and listening proficiency, and student's field of study (i.e. science-oriented and non-science-oriented). Therefore, finding the listening strategies used by different

listening proficiency non-English majors and investigating whether there are any differences between the different listening proficiency non-English majors will be of great significance and the focus of this study.

2.1.6 Problems of listening comprehension

All language learners face difficulties when listening to the target language (Goh, 2000). A number of researchers have clarified L2/FL listening problems encountered by listeners (Vogely, 1995; Goh, 2000; Hasan, 2000; Graham, 2006) in the listening literature. Goh (2000) highlights that two of the problems were noted by a majority of both more skilled and less skilled listeners: not recognizing words they know and quickly forgetting what they heard. And according to Graham (2006), the main problems highlighted by learners were coping with the speed of delivery of texts, making out individual words in a stream of spoken texts, and making sense of any words identified. Not surprisingly, most learners attributed their difficulties in listening to their own supposed low ability in listening and to the difficulty of the listening tasks and texts set. From the problem identified above, it can imply that most learners have limited knowledge of their ways of dealing with comprehending the input, and little awareness of the actual problems occurring during their listening comprehension. These problems are common to the L2/FL learners, and they usually have been ignored and unresolved in the conventional teaching of listening. One of the most important ways which may help learners overcome their listening problems and facilitate successful listening is to guide them in employing listening strategies effectively to compensate the breakdowns. The following section will discuss the definition of listening strategies, and a brief discussion of classification systems of listening strategies put forward by different researchers.

2.2 Listening strategies

2.2.1 Definitions of listening strategies

Listening is one of the skills of language learning. Listening strategies are generally regarded as important components of learning strategies and research on listening strategies evolves from studies on learning strategies. Thus, the definition and classification of listening comprehension strategies are correspondingly connected with those of learning strategies. Before defining listening strategies, there is a need to review the definition of learning strategies. However, the definitions of learning strategies have no consensus because of the different interpretations of them. The typical definitions of learning strategies are discussed by some influential researchers (e.g. Rubin, 1975; Naiman et al., 1978; Bacon, 1992; O'Malley and Chamot, 1990; Oxford, 1990; Cohen, 1998). Some of the definitions will be reviewed as follows: Rubin (1975) defines learning strategies as techniques or device which a learner may use to acquire second language knowledge. Oxford (1990) holds that learning strategies are actions adopted to improve the second language learning skills that can accelerate the storage, amendment and utilization of a new language. O'Malley and Chamot (1990) states that learning strategies are the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information. Cohen (1998) believes that learning strategies are the actions which are consciously selected by learners to enhance the learning or use of a second or foreign language, through the storage, retention, recall and application of information about that language.

Based on the definition of learning strategies, Ellis (1994) defines listening strategies as the particular approaches or techniques that learners use to improve their

listening comprehension ability. These listening strategies can be behavioral or mental. Moreover, listening strategies can be problem-oriented and listeners may apply listening strategies when they meet problems in the listening process. In sum, in the present study, listening strategies are defined as the conscious, deliberate and particular listening behavior or thoughts that listeners employ to try to comprehend the English oral texts to make them to be more successful in their listening process.

2.2.2 The classification of listening strategies

There are many kinds of learning strategy classifications in the literature review; some of them are rather similar, but some of them are different. In order to carry out the study more easily, some distinct learning strategy taxonomies will be reviewed as the basis of listening strategy classifications in the present study.

O'Malley and Chamot (1990) classify learning strategies into three categories: meta-cognitive strategies, cognitive strategies, social/ affective strategies. First, Meta-cognitive strategies are described as higher order executive skills that make use of knowledge about processes and constitute an attempt to regulate language learning by means of planning for, monitoring and evaluating of the process of a learning activity. Meta-cognitive strategies involve advance organizers, directed attention, selective attention, self-management, functional planning, self-monitoring, delayed production and self-evaluation. Second, Cognitive strategies are the strategies which are limited to the specific learning tasks and involve more direct manipulation of the learning material itself. They include repetition, resourcing, directed physical response, translation, deduction, recombination, imagery, auditory representation, keyword method, conceptualization, elaboration, transfer, inferencing and summarizing. Third, Social/affective strategies deal with social-mediating activities and transacting with

others. They include cooperation, questioning for clarification, self-talk and self-reinforcement.

In Oxford's (1990) classification, there are two main types of learning strategies. One is direct strategies, and the other is indirect strategies. Direct strategies are the strategies that directly involve the target language in the sense that they need mental processing of the language. Indirect strategies indirectly support language learning by arranging, lowering anxiety, encouraging oneself, cooperating with others, asking questions, etc. In detail, direct strategies include three main strategies: memory strategies, cognitive strategies, and compensation strategies, while indirect strategies include three strategies: meta-cognitive strategies, affective strategies and social strategies.

Cohen (1998) classifies learning strategies into two categories: language learning strategies and language using strategies. Language learning strategies refers to the strategies for learning a language. They include such strategies like grouping vocabulary into nouns, verbs, and etc. Language using strategies refers to the strategies for using a language which include four subsets of strategies: retrieval strategies, rehearsal strategies, cover strategies and communication strategies. Retrieval strategies are the strategies used to call up language materials from storage. Rehearsal strategies are the strategies for repeating practicing target language structures. Cover strategies refer to the strategies that learners use to create the impression that they have control over materials when they do not. Communication strategies involve the strategies that focus on approaches to conveying a message that is both meaningful and informative for the listener or reader.

Among the above reviewed classification of language learning strategies, O'Malley and Chamot (1990)'s classification is widely acknowledged by researchers. The work of O'Malley and Chamot (1990) brings both greater structure and a stronger theoretical base to the field of LLS research. Based on O'Malley and Chamot's (1990) classification of LLS, Vandergrift (1996) used this tripartite classification scheme of meta-cognitive, cognitive and socio/affective strategies as the framework for studying listening strategies. In Vandergrift's (1996) classification of listening strategies, listening strategies also fall into three main categories: meta-cognitive strategies, cognitive strategies and social/affective strategies. The followings are the detailed classification of listening comprehension strategies of the present study which is based upon Vandergrift's (1996) classification of listening strategies.

Meta-cognitive strategies

1. *Planning*: Developing an awareness of what needs to be done to accomplish a listening task; developing an appropriate action plan to overcome difficulties that may interfere with successful completion of the task.
2. *Advance organization*: Clarifying the objectives of an anticipated listening task and proposing strategies for handling it.
3. *Directed attention*: Deciding in advance to attend in general to the listening task and to ignore irrelevant distracters; maintaining attention while listening.
4. *Selective attention*: Deciding to attend to specific aspects of language input or situational details that assist in understanding or task completion.
5. *Self-management*: Understanding the conditions that help one successfully accomplish listening tasks and arranging for the presence of those conditions.

6. *Monitoring*: Checking, verifying, or correcting one's comprehension of performance in the course of a listening task.

7. *Evaluating*: Checking the outcomes of one's listening comprehension against an internal measure of completeness and accuracy.

Cognitive strategies

8. *Inferencing*: Using information within the text or conversational context to guess the meanings of unfamiliar language items associated with a listening task, predict outcomes, or to fill in missing information.

9. *Linguistic inferencing*: Using known words in an utterance to guess the meaning of unknown words.

10. *Extra-linguistic inferencing*: Using background sounds and relationships between speakers in an oral text, material in the response sheet, or concrete situational referents to guess the meaning of unknown words.

11. *Between parts inferencing*: Using information beyond the local sentential level to guess at meaning.

12. *Elaboration*: Using prior knowledge from outside the text or conversational context and relating it to knowledge gained from the text or conversation in order to predict outcomes or fill in missing information.

13. *Personal elaboration*: Referring to prior experience personally.

14. *World elaboration*: Using knowledge gained from experience in the world.

15. *Academic elaboration*: Using knowledge gained in academic situations.

16. *Translation*: Rendering ideas from one language to another in a relatively verbatim manner.

17. *Transfer*: Using knowledge of one language to facilitate listening in another.

18. *Repetition*: Repeating a chunk of language (a word or phrase) in the course of performing a listening task.

19. *Resourcing*: Using available reference sources of information about the target language, including dictionaries, textbooks, and prior work.

20. *Note taking*: Writing down key words and concepts in abbreviated verbal, graphic, or numerical form to assist performance of a listening task.

21. *Deduction / induction*: Consciously applying learned or self-developed rules to understand the target language.

22. *Imagery*: Using mental or actual pictures or visuals to represent information.

Socio-affective strategies

23. *Questioning for clarification*: Asking for explanation, verification, rephrasing, or examples about the language or task; posing questions to the self.

24. *Cooperation*: Working together with someone to solve a problem, pool information, check a learning task, model a language activity, or get feedback on oral or written performance.

25. *Lowering anxiety*: Reducing anxiety through the use of mental techniques that make one feel more competent to perform a listening task.

26. *Self-encouragement*: Providing personal motivation through positive self-talk and arranging rewards for oneself during a listening activity or upon its completion.

27. *Taking emotional temperature*: Becoming aware of, and getting in touch with one's emotions while listening, in order to avert negative ones and make the most of positive ones.

The above classification of listening strategies involves three main categories: meta-cognitive, cognitive and social/affective strategies. Each category can be further

divided into several smaller ones: meta-cognitive strategies include planning, monitoring, evaluating; cognitive strategies involve inferencing, elaboration, translation, transfer, repetition, resourcing, note-taking, deduction/induction, imagery; social/affective strategies are composed of questioning, cooperation, lowering anxiety, self-encouragement. Some of sub-categories can also be sub-divided into smaller ones. Planning in meta-cognitive strategies includes advance organization, directed attention, selective attention, self-management. Inferencing in cognitive strategies includes linguistic inferencing, extra-linguistic inferencing, between parts inferencing. Elaboration in cognitive strategies involves personal elaboration, world elaboration, academic elaboration. Some of the sub-categories (*comprehension monitoring, auditory monitoring* belong to monitoring strategy, *evaluation* belongs to evaluating in meta-cognitive strategies, *voice and paralinguistic inferencing and kinesic inferencing* belong to inferencing in cognitive strategies) in the classification were deleted in order to carry out the study more easily. The above categories of listening strategies will be used as a base for developing questionnaire in the present study to elicit the students' listening strategies.

2.2.3 Previous research studies on listening strategies

2.2.3.1 Previous research studies on listening strategies in foreign countries

In the past two decades, research studies on listening strategies have been conducted by many researchers in several areas in foreign countries. In the recent review of listening strategy research, there are various studies on listening strategies. Some of the researchers examine the use of listening comprehension strategies by different students in terms of their use of types of cues which learners

devote attention when listening (Martin, 1982; Young, 1997). Some of the research studies focus on the sequence of listening (Conrad, 1981; Harley, 2000). A number of studies examine differences in the strategy use of more- and less-proficient L2 listeners (Fujita, 1985; Murphy, 1987; O'Malley et al., 1989; Rost & Ross, 1991; Vandergrift, 1997); Some of the studies seek to help the students develop their listening ability with listening strategy instruction (Mendelsohn, 1995; Vandergrift, 1997; Field, 1998; Thompson & Rubin, 1996); Some of the studies explore the distinction between strategies and tactics (Goh, 1998, 2002); and some of the researchers identify listening problems students encounter when listening (Vogely, 1995; Goh, 2000; Hasan, 2000). In terms of identifying the sequence of listening, Martin (1982) believes that listeners generally follow a common sequence of activities when listening. Young (1997) reports that listeners tend to follow a specific pattern of strategy use. Both Martin (1982) and Young (1997) note that although learners showed similar overall patterns of strategy use, they still have their differences in strategy use. In this sense, it is important to remember that strategy use is a very individual matter (Berne, 2004).

The studies conducted on the subjects with different language proficiency are the main stream of LS research. O'Malley, Chamot and Küpper (1989) studied intermediate-level ESL students with think-aloud methodology. They discovered a huge gap between effective and ineffective listeners in strategy use. Effective listeners used more self-monitoring elaboration and inferencing than the ineffective listeners. Rost and Ross (1991) investigated strategies used by students with different proficiency levels through a dictation test. The results showed that certain strategies were correlated with proficiency. That is, beginning-level students

tended to use a persistent pattern of global queries while more advanced students preferred to use forward inference and continuation signals. Vandergrift (1992) studied the differences in strategy use by successful and less successful learners. It revealed that novice listeners relied heavily on strategies like elaboration, intervening and transfer, whereas listeners at the intermediate level more frequently used meta-cognitive strategies such as planning and monitoring. From the above research studies, we can easily conclude that there are differences in the ways that more- and less-proficient L2/FL listeners employ strategies. However, this is not absolute since there are few research studies showing the similar use of strategies between successful and unsuccessful learners. Research conducted by DeFillippis (1980) indicated that the listening strategies used by skillful and less skillful listeners were more or less similar. Both groups reported using the same list of strategies, and the total number of strategies used by each group was nearly equal.

After reviewing the related literature of LS studies in the foreign countries, we found that much of the previous research on LS mainly used comparative analysis to study the differences in the use of listening strategies between successful and unsuccessful students. However, it should be noticed that research on different learners carried out in the foreign country has not yet been carried out in China, especially with the variable as different listening proficiency non-English majors of different academic field of study. In this sense, the present study makes attempt to fill the gap in this field.

2.2.3.2 Research studies on listening strategies in China

Research studies on listening strategies in China have also developed recently but in a few numbers. Wang (2002) investigated listening strategies of 178

Chinese non-English majors by means of quantitative method. The findings show that listening strategies can have positive effects on listening outcome, but only to a limited degree. Effective and ineffective listeners use listening strategies differently. Ji and He (2004) carried out a study on college students' use and teachers' teaching of listening strategies. The findings indicated that the frequency of students' use of listening strategies is not high and it only reached the intermediate level. By putting the listening strategies in the sequence from that with the lowest to the highest, they were social/affective strategies, meta-cognitive strategies and cognitive strategies. Shi (2004) conducted a research study to investigate what and how the non-English majors employ listening comprehension strategies in the compound dictation test and the relationship between their strategies and outcomes. The research results showed that successful listening required various strategies, especially those key strategies, and the less efficient students mainly use bottom-up strategies. Shi (2004) also called for the help for the non-English majors to develop effective listening strategies in a certain kind of test.

Considering the above reported studies, one can come to the point that the results of the studies show that listening strategies can have positive effects on listening outcome, and successful listening requires various strategies. However, research studies indicate that different students use listening strategies differently (e.g. successful and unsuccessful students). Therefore, this fact indicates the necessity for further research in this area to fill the gap on the relationship between the different non-English majors. It would be beneficial to conduct a research study on how different listening proficiency non-English majors apply their listening strategies and what are their attitudes towards the using of listening strategies. In the present

investigation, the university non-English majors are investigated in order to see whether there are differences between the different listening proficiency non-English majors in using LS and whether there is any relationship with their different fields of study or not. In the present study, two different fields of study: science-oriented and non-science-oriented are included.

In conclusion, in the listening comprehension research literature, many researchers have conducted the research studies on what kind of listening strategies used by the students in L2 listening comprehension. Identifying different strategy patterns and associating them with different learners is potentially very useful. Thus, it might be beneficial to conduct the research project on the use of strategies by different listening proficiency non-English majors since there is no research study in this domain in both in the foreign countries and in China.



CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this chapter is to present the specific plan of procedure of this research project. It starts with the participants of the study, and then followed by the research instruments, methods of data collection as well as data analysis respectively.

3.1 Participants

The number of the non-English majors increases along with the extension of the enrollment at Kaili University. Approximately 3,000 non-English majors have been enrolled at Kaili University since 2009. According to Cohen, Manion, and Morrison (2000), it is impossible for a researcher to study the whole population. Thus, two hundred and eighty third-year non-English majors at Kaili University were selected in the present study. There are several reasons why the researcher of the present study selected the 3rd year students as the research subjects. First, after formal learning in the university for two years, it is believed that the students have formed their own learning methods and strategies. Second, the 3rd year students have already taken CET4 after they finish their two-year CE study. Therefore, their listening abilities can be indicated as either high or low based upon their scores in the listening part of the CET4 test. Third, it is assumed that there exist distinct differences in the use of listening strategies among different non-English majors.

Two hundred and eighty non-English majors are from six different classes, as shown in Table 3.1 below, one hundred and forty students are in science-oriented group, they are majoring in Mathematics and Physics, Computer and Information Science, Biology and Environment, one hundred and forty students are in non-science-oriented group, they are majoring in Humanities, Arts and Education.

Table 3.1 Description of subjects

Field of study	Major	Number	Total	Total
Science-Oriented Students	Mathematics & Physics	50	140	280
	Computer & Information Science	45		
	Biology & Environment	45		
Non-science- Oriented Students	Humanities	50	140	
	Arts	45		
	Education	45		

In terms of the investigation, the subjects have just finished their two years of college English courses. They took part in CET4 as well. Both high listening proficiency students and low listening proficiency students of these non-English majors were selected based on the scores of the listening part in CET4 and the teacher's evaluation of the student's listening proficiency. CET4 which is the national examination for non-English major college students in China is official and used widely in China, so it is highly valid and reliable. For the students majoring in

science-oriented, the students whose scores were placed in the top 35 places (25% of the one hundred and forty science-oriented students) along with the teacher's evaluation of their proficiency were taken in the high listening proficiency students group. And the ones whose scores were placed at the bottom 35 places (25% of the one hundred and forty science-oriented students) along with the teacher's evaluation of their proficiency were taken in the low listening proficiency students group. For the students majoring in non-science-oriented, the same procedure was carried out in arranging them into the high listening proficiency students group and the low listening proficiency students group (See Appendix V). Then the T-test was used to confirm the difference between the groups of high listening proficiency students and low listening proficiency students both in science-oriented and non-science-oriented (See Table 3.2, 3.3, 3.4).

Table 3.2 The Result of the T-test of Students' Listening Proficiency Level of the Science-oriented Students.

Mean		SD		P value ($<.05$)
HLPS	LLPS	HLPS	LLPS	
133.80	87.00	5.586	1.871	0.000

Mean = Mean Score SD = Standard Deviation

Table 3.3 The Result of the T-test of Students' Listening Proficiency Level of the Non-science-oriented Students.

Mean		SD		P value ($<.05$)
HLPS	LLPS	HLPS	LLPS	
162.00	95.8.00	8.631	11.256	0.000

Mean = Mean Score SD = Standard Deviation

Table 3.2, 3.3 showed that there are significant differences between the groups of high listening proficiency students and low listening proficiency students both majoring in science-oriented and non-science-oriented.

Two hundred and eighty non-English majors responded to the questionnaire, high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented were interviewed. The participants took college English as their English regular courses, it is assumed that there existed differences in the use of listening strategies among high listening proficiency students and low listening proficiency students, high listening proficiency students majoring in science-oriented and non-science-oriented, and low listening proficiency students majoring in science-oriented and non-science-oriented. In this sense, the results of the study would reflect the differences of the use of listening strategies. Thus, the pedagogical implications would be discussed according to the results of the investigation.

3.2 Research Instruments

For the past twenty years, researchers have used a variety of approaches for the investigation of language learning strategies. Research in strategies has relied mostly on learners' self-reports. These self-reports have been made through retrospective interviews, stimulated recall interviews, written questionnaires, written diaries and journals, and think-aloud protocols concurrent with a learning task. However, in order to elicit the listening strategies used by students majoring in non-English at Kaili University, written questionnaire and retrospective interview were employed in the present study.

3.2.1 Listening Strategy Questionnaire

A researcher-generated questionnaire was used as the main instrument for the data collection. The Alpha Coefficient (α) or Cronbach Alpha was employed to check the internal consistency of the strategy questionnaire. Based on O'Malley and Chamot's (1990) language learning strategy classification, Vandergrift's (1996) classification of listening strategies, and Shi's (2004) questionnaire on investigating Chinese non-English majors listening strategies, the listening strategy questionnaire of the present study was designed and revised for collecting the data. The questionnaire consisted of three main parts: Student Profile, English Listening Strategy, and Attitudes about English Listening Strategies. In the second part, the listening strategies were classified into three categories: meta-cognitive, cognitive, and social/affective strategies. There were totally 27 items in the second part. The questionnaire employed a five-point Likert scale, and the subjects were asked to indicate one of the five responses ranged from "always appropriate" to "never happen". There are various reasons that written questionnaire and retrospective interview were chosen as the research instruments of this study.

For written questionnaire, first of all, students in non-English majors were asked to rate the frequency with which they use a particular strategy, rather than only indicating whether they use it at all. This can be a great advantage of the present study. Secondly, for a large numbers of students majoring in non-English, questionnaire can be used extensively to collect data. Last but not least, questionnaire is the easiest way to collect data about students' reported use of learning strategies.

3.2.2 Semi-Structured Interview

The interview in the present study consists of 5 question items, which aim to elicit the interviewees' more information about using listening strategies (Appendix IV). Learners were asked to reflect on a learning task and recall what strategies or 'special tricks' they used to carry out the task. The advantage of retrospective interviews is flexibility. The interviewer can clarify the questions if necessary, asking follow-up questions, and commenting on the student's responses. The semi-structured interview in the study was conducted with a small group of five students because "retrospective interviews are relatively easy to conduct with small groups of three to five students" (O'Malley & Chamot, 1990, p95). The advantage of using small group interview is mainly that one student's comments can spur the memories of other students about their uses of learning strategies in the group interview. In this sense, the researcher may have the chance to get more deep information from the subjects. Besides, conducting a small group interview can save more time on a large number of research subjects. Moreover, it provided the researcher flexibility in clarifying the students' listening strategy use.

3.2.3 Validity and Reliability Check

Check of the validity and reliability of the data collection instruments is very important to their overall measurement qualities. Dornjei (2003) points out that the questionnaire depends on the readability of the statements and the actual wordings used in the items, thus piloting the questionnaire is a very important step in the questionnaire construction in order to obtain information about reliability and validity of the instrument.

3.2.3.1 The content validity check

The content validity check is to check whether the questionnaire items and interview questions can measure what they were designed for. The questionnaire items and interview questions in English were translated into Chinese to avoid misunderstanding and confusion, and these Chinese versions together with the evaluation form for content validity check were sent to three experts.

The three experts are all academically qualified in China. Three of them have taught College English for at least 10 years in Kaili University, Guizhou, China. The experts read each item, and the relevance of each item to the purpose of the questionnaire and the appropriateness of the content areas, and then checked the evaluation form by using Item-Objective Congruence Index (IOC) as a validation method for the validity of the questionnaire and the interview questions. The evaluation form used a 3-point scales (1 refers to relevant, 0 refers to uncertain, -1 refers to irrelevant). After adjusting to the experts' advice and checking the results of IOC index for each item and question by item analysis (IAS), the result of current questionnaire is 0.80 and the interview question is 0.80 (See Appendix VI). The result of the item analysis from the IOC revealed that all the questionnaire items and the interview questions were relevant to the present study, because the acceptable value should be no less than 0.5 (Booncherd, 1974). So, all items were kept. However, some inappropriate wordings are improved according to the three experts' suggestions.

3.2.3.2 The reliability check for the questionnaire

Good reliability of the questionnaire, according to Devellis (2003), will be found if the alpha (α) is at least equal to 0.70 ($\alpha \geq 0.70$). Therefore, Cronbach's coefficient alpha was used as the measuring instrument to check the internal

consistency of the questionnaire items of this study. By using SPSS 16.0 for calculating, the reliability value of the questionnaire was found to be 0.91, which was much higher than 0.70. That is, the present questionnaire is reliable and can be used in the main study.

Table 3.4 The Reliability Check for Listening Strategy Questionnaire

Case Processing Summary

		N	%
Cases	Valid	280	100.0
	Excluded	0	.0
Total		280	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.908	30

3.3 Data Collection

3.3.1 Procedure for the Questionnaire

The present study aims to investigate how the non-English majors at Kaili University apply listening strategies in listening tasks. The data collection was conducted with the help of the English teachers who both teach science-oriented and non-science-oriented students in the classrooms during regular class time. The participants were informed that their response confidentiality was guaranteed, and there was no right or wrong answer in the questionnaire. Moreover, the students were

told that there was no effect on their study scores. Before the questionnaire was administered, the teacher explained how to respond to the questionnaire items by giving examples to the respondents.

3.3.2 Procedure for the Semi-Structured Interview

Both high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented participated the semi-structured interview. The researcher visited the interviewees and conducted the interview session by using semi-structured questions after receiving the questionnaire. The interview was recorded by using both note-taking technique and audio recording technique: MP3.

3.4 Data Analysis

The methods of data analysis in the present study involved both quantitative and qualitative analysis.

3.4.1 Quantitative Analysis

The present study utilized SPSS 16.0 to investigate the general attitudes in the use of listening strategies by the non-English majors and the differences among the high listening proficiency students and low listening proficiency students in the use of listening strategies in listening comprehension. Descriptive statistics was obtained to see the general attitude in the use of LS by non-English majors. Independent-sample t-test was used to analyze the use of LS by high listening proficiency students and low listening proficiency students, high and low listening proficiency science-oriented and non-science-oriented students.

3.4.2 Qualitative Analysis

The data from the interview were about student's attitudes on listening strategies, and their use of listening strategies. Thus, the data collected was analyzed and described in qualitative way.

3.5 The Pilot Study

In order to obtain data to help in conducting the main study as well as help the researcher to see any weak points of the procedure, a pilot study was conducted prior to the main study. According to Lancaster, Dodd, and Williamson (2004), a pilot, or feasibility study, is a small experiment designed to test logistics and gather information prior to a larger study, in order to improve the latter's quality and efficiency.

This pilot study was conducted on October 12, 2011. The treatment of the pilot study lasted for one week. The administering of the questionnaire and the interview were as follows:

Forty third year non-English majors from Kaili University participated in answering the questionnaire. After explaining some key points of the questionnaire, the researcher administered questionnaire papers with 40 students, who voluntarily participated. Then, in order to obtain more detailed information, the researcher asked the high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented do the interview on the next day after the questionnaire papers were returned. They were 10 high listening proficiency students and 10 low listening proficiency students in the four interview groups (two groups are science-oriented students, two groups are non-science-oriented students, five in each

group). In science-oriented group, there were seven high listening proficiency students and three low listening proficiency students. In non-science-oriented group, there were three high listening proficiency students and seven low listening proficiency students. The Chinese language is also used for better understanding and convenience. All the group interviews were recorded by MP3, transcribed and translated into English for data analysis. The group interview lasted two hours.

The results of the present pilot study are as follows: Research question one is concerned with the attitudes of non-English majors towards applying LS in listening comprehension. The non-English majors showed that they believed effectively applying LS is very important for listening comprehension. They undecided if LS can be taught. But they strongly disagreed that LS could be naturally acquired. Research question two is concerned with the differences between high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented in using LS. The result showed that there were significant differences between high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented in using LS. Research question three is about the differences between the high listening proficiency students majoring in science-oriented and non-science-oriented, and the low listening proficiency students majoring in science-oriented and non-science-oriented. The results of the data analysis also showed that there were significant differences between the high listening proficiency students majoring in science-oriented and non-science-oriented, and the low listening proficiency students majoring in science-oriented and non-science-oriented.

The results of the present pilot study must be considered tentatively. Nevertheless, the current pilot study can be considered to indicate how LS are employed by the NEMs. Conducting the research project with a bigger number of students might shed more light on how the students employ the strategies, and it will provide clearer and more detailed information on the issue of listening strategy used by students in different listening proficiency levels and fields of study.

3.6 Summary

In conclusion, this chapter introduced the research methodology employed in the present study. The written questionnaire and semi-structured interview were used to investigate non-English majors' use of listening strategies and their attitudes on using LS. The content validity check of the questionnaire and interview questions were also presented in this chapter. It was then followed by the description of the procedures of the data collection. The reliability check of the questionnaire and the analysis of the data were provided. In the next chapter, the results of the data analysis and the discussions for the study will be presented.

CHAPTER 4

RESULTS AND FINDINGS

This chapter presents the results and findings of the study, aiming to find out the answers to the following research questions:

- 1) What are the general attitudes of the university non-English majors towards applying listening strategies in listening comprehension?
- 2) Do high and low listening proficiency university students majoring in science-oriented and non-science-oriented use LS differently? If yes, what are they?
- 3) Do high listening proficiency students majoring in science-oriented and non-science-oriented use LS differently? If yes, what are they? Do low listening proficiency students majoring in science-oriented and non-science-oriented use LS differently? If yes, what are they?

To answer the three research questions of the present study, there were two research instruments employed: questionnaire and semi-structured interview.

4.1 Answers to Research Question 1

General attitudes of the university NEMs towards applying LS in LC

The first research question was answered with the data received from questionnaire and semi-structured interview as well. Through the questionnaire, the research study found that most of non-English majors believed that effectively applying listening strategies is very important for listening comprehension

(Mean=4.62). The non-English majors were sure that listening strategies can be taught (Mean=4.10). They strongly disagreed that listening strategies could be naturally acquired (Mean=1.82). The data from the questionnaire was presented in table 4.1.

Table 4.1 Standard Deviation and Mean Scores of Students' Attitudes

Students' Attitudes on Listening Strategies	Mean	Std. D	N
Listening strategies can be naturally acquired.	1.82	0.701	280
Listening strategies can be taught.	4.10	0.783	280
Effectively applying listening strategies is very important for listening comprehension.	4.62	0.493	280

As for interview questions which could avoid the subjectivity of only using the questionnaire as the one instrument, the last two questions in the interview (*Do you think it is necessary to apply English listening strategies for your listening comprehension? Why or why not?* and *Do you think teacher has to instruct listening strategies?*) were used to explore the students' general attitudes towards applying LS in listening comprehension. When answering these two questions, one hundred and thirty out of one hundred and forty of the interviewees held the same attitudes that it was necessary to apply English listening strategies for listening comprehension. One hundred twenty-two out of one hundred forty of the interviewees agreed that teacher had to instruct listening strategies in the English classroom. The following part shows examples of students' answers for question 4 and question 5 in the interview:

Q 4: Do you think it is necessary to apply English listening strategies for your listening comprehension?

“...I think it’s necessary to apply English listening strategies for the listening comprehension. Because strategies are the ways which can help us deal with the problems...”

(Student5)

“...necessary, strategies are the keys of solving the problems...”

(Student 22)

“...it’s necessary, it will help me improve my listening ability...”

(Student 48)

“...Yes, it is necessary, because LS can improve the efficiency of listening comprehension ...”

(Student 76)

Q 5: Do you think teacher has to instruct listening strategies?

“...yes, teacher’s instruction will help me a lot...”

(Student 156)

“...yes, teacher has to instruct LS, You know proper using of listening strategies in listening comprehension can really help in listening comprehension...”

(Student 235)

“...yes, good strategies need to be instructed...”

(Student255)

“...yes, teacher’s instruction on listening strategies can help us improve listening ability.”

(Student 270)

Therefore, the results of questionnaire and semi-structured interview went into the same direction and supported each other. In sum, both instruments indicated that

the non-English majors had the positive attitudes on the use of LS. Moreover, they hoped to be instructed listening strategies in their English classrooms.

4.2 Answers to Research Question 2

The use of LS between HLPS and LLPS majoring in science-oriented and non-science-oriented

The answers to this question were also provided by the data from the questionnaire and the semi-structured interview.

4.2.1. The use of LS between HLPS and LLPS majoring in science-oriented

The data presented in table 4.2 showed the mean scores of meta-cognitive, cognitive, and social/affective strategies reported by high listening proficiency students and low listening proficiency students majoring in science-oriented. It revealed that there were significant differences in using meta-cognitive, cognitive strategies and social/affective strategies between high listening proficiency students and low listening proficiency students majoring in science-oriented.

Table 4.2 The Mean Score and Standard Deviation of the three strategies of LS use between HLPS and LLPS majoring in science-oriented

Listening Strategies	Mean		Std.D		T-test
	HLPS(n=35)	LLPS(n=35)	HLPS(n=35)	LLPS(n=35)	P value
Meta-cognitive strategies	4.61	1.80	0.533	0.609	0.000
Cognitive strategies	4.51	1.70	0.659	0.556	0.000
Social/affective strategies	3.63	2.17	0.498	0.728	0.000

With regard to the strategies used by high listening proficiency students majoring in science-oriented, they appeared to use meta-cognitive strategies (M=4.61) the most followed by cognitive strategies (M=4.51). There was very low use of social/affective strategies (M=3.63). On the contrary, the answer revealed that low listening proficiency students majoring in science-oriented used all three types of strategies in a very low amount. However, they used the strategies in the following order: social/affective strategies (M=2.17), meta-cognitive strategies (M=1.80), and cognitive strategies (M=1.70). From the analysis, it is clear that the difference in meta-cognitive, cognitive and social/affective strategy use between the high listening proficiency students and low listening proficiency students majoring in science-oriented were significant ($p=.000<.05$). Furthermore, within the meta-cognitive, cognitive and social/affective strategies categories, high listening proficiency students

reported using all the LS more than the low listening proficiency students majoring in science-oriented.

Based on the records of the interview, of all the listening strategies the high listening proficiency students majoring in science-oriented reported the highest three frequently used sub-categories strategies, 33 students out of 35 high listening proficiency students reported that they used *monitoring (meta-cognitive strategy)*, 31 students out of 35 high listening proficiency students revealed that they used *planning (meta-cognitive strategy)*, 30 students out of 35 high listening proficiency students showed that they employed *evaluating (meta-cognitive strategy)*. However, the low listening proficiency students reported very low strategies use. The result from the interview supported the result of the questionnaire. The following part is the examples of the students' answers from the interview:

(HLPS GROUP)

Excerpt 1:

Student 7: "...I try to check my comprehension during the process of listening..."

Student 12: "...I put everything together to help understanding one and another..."

Student 24: "...I correct during the process of listening..."

(Monitoring of meta-cognitive strategy)

Excerpt 2:

Student 4: "...I read over the questions before listening..."

Student 15: "...I try to think of the questions first..."

Student 34: "...I preview the new words first..."

(Planning of meta-cognitive strategy)

Excerpt 3:

Student 6: “...I think about whether the approaches used are efficient after listening...”

Student 10: “...I check the approaches which I used in the listening process...”

Student 18: “...I think over which way I used help me a lot in listening...”

(Evaluating of cognitive strategies)

(LLPS GROUP)**Excerpt 4:**

Student 13: “...I don't know how to deal with the listening part...”

Student 23: “...I found listening is so difficult that I couldn't understand even though I try my best to listen again and again...”

(No strategies)

4.2.2 The use of LS between HLPS and LLPS majoring in non-science-oriented

The data presented in table 4.3 showed the mean scores of meta-cognitive, cognitive, and social/affective strategies reported by high listening proficiency students and low listening proficiency students majoring in non-science-oriented. It revealed that there were significant differences in using meta-cognitive, cognitive strategies and social/affective strategies between high listening proficiency students and low listening proficiency students majoring in non-science-oriented.

Table 4.3 The Mean Score and Standard Deviation of the Three Categories of LS use between HLPS and LLPS majoring in non-science-oriented

Listening Strategies	Mean		Std.D		T-test
	HLPS(n=35)	LLPS(n=35)	HLPS(n=35)	LLPS(n=35)	P value
Meta-cognitive strategies	4.20	2.00	0.536	0.488	0.000
Cognitive strategies	4.82	2.20	0.251	0.627	0.000
Social/affective strategies	2.63	2.03	0.595	0.409	0.000

With regard to the strategies used by high listening proficiency students majoring in non-science-oriented, they appeared to use cognitive strategies (M=4.82) the most followed by meta-cognitive strategies (M=4.20). There was very low use of social/affective strategies (M=2.63). On the contrary, the answer revealed that low listening proficiency students majoring in non-science-oriented used all three types of strategies in a very low amount. However, they used the strategies in the following order: cognitive strategies (M=2.20), social/affective strategies (M=2.03) and meta-cognitive strategies (M=2.00). From the analysis, it is clear that the difference in meta-cognitive, cognitive and social/affective strategy use between the high listening proficiency students and low listening proficiency students majoring in non-science-oriented were significant ($p=.000<.05$). Furthermore, within the meta-cognitive, cognitive and social/affective strategies categories, high listening proficiency students reported using almost all the LS more than the low listening proficiency students

majoring in non-science-oriented. However, there is no significant difference between high listening proficiency students ($M=1.83$) and low listening proficiency students ($M=1.74$) on *taking emotional temperature* (social/affective strategy). It appears that both high listening proficiency students and low listening proficiency students seldom adopt this strategy.

Based on the records of the interview, of all the listening strategies the high listening proficiency students reported the highest three frequently used sub-categories strategies, 30 students out of 35 high listening proficiency students reported that they used *resourcing* (cognitive strategy), 28 students out of 35 high listening proficiency students revealed that they used *elaboration* (cognitive strategy), 26 students out of 35 high listening proficiency students showed that they employed *note-taking* (cognitive strategy). However, the low listening proficiency students reported very low strategies use. 10 students out of 35 reported they *translation* (cognitive strategy) and 5 out of 35 showed they use *repetition* (cognitive strategy). The result from the interview supported the result of the questionnaire. The following part is the examples of the students' answers from the interview:

(HLPS GROUP)

Excerpt 5:

Student 1: "...I prefer to use dictionary to look up the words ..."

Student 9: "...I use textbooks to help me understand the listening material..."

Student22: "...I use my notes which I took before to help in listening exercises..."

(Resourcing of cognitive strategy)

Excerpt 6:

Student 3: "...I try to figure out the words with the help of my prior experience..."

Student 11: "...I relate the word to a song I've heard..."

Student 29: "...I use the topic to determine the words that I will listen to..."

(Elaboration of cognitive strategy)

Excerpt 7:

Student 5 "...I like to jot down key words when practicing listening..."

Student 17 "...I usually take notes when listening..."

Student 20 "...I write down the numbers, names, or times for resourcing later..."

(Note-taking of cognitive strategy)

(LLPS GROUP)

Excerpt 8:

Student 2: "...I translate every word into Chinese..."

Student 21: "...I translate what I listened into Chinese to help me understand the listening materials..."

(Translation of cognitive strategy)

Student 14: "...I repeat a word or phrase during listening..."

Student 35: "...I repeat the words but I couldn't understand any..."

(Repetition of cognitive strategy)

Excerpt 9:

Student 8: "...firstly I try to listen, but when I found I couldn't understand, then I quit..."

Student 16: "...I could only understand few of the words when I was listening to English, so I always sit their do nothing..."

(No strategies)

4.3 Answers to Research Question 3

The use of LS between HLPS majoring in science-oriented and non-science-oriented, and LLPS majoring in science-oriented and non-science-oriented

The answers to the question were also provided by the data from the questionnaire and the semi-structured interview.

4.3.1 The use of LS between HLPS majoring in science-oriented and non-science-oriented

Interestingly, significant differences have been found in using meta-cognitive ($p=.02<.05$), cognitive ($p=.014<.05$), and social/affective strategy use ($p=.000<.05$) between high listening proficiency students of science-oriented and non-science-oriented from the questionnaire data. The data from the questionnaire was presented in table 4.4.

Table 4.4 The Mean Score and Standard Deviation of the three strategies of LS use between HLPS majoring in SO and NSO

Listening Strategies	Mean		Std.D		T-test P value
	SO	NSO	SO	NSO	
	HLPS(n=35)	HLPS(n=35)	HLPS(n=35)	HLPS(n=35)	
Meta-cognitive strategies	4.61	4.21	0.533	0.536	0.02
Cognitive strategies	4.51	4.82	0.659	0.251	0.014
Social/affective strategies	3.63	2.63	0.498	0.595	0.000

High listening proficiency students majoring in science-oriented appeared to use meta-cognitive strategies ($M=4.61$) the most followed by cognitive strategies ($M=4.51$). There was low use of social/affective strategies ($M=3.63$). On the other hand, high listening proficiency students majoring in non-science-oriented reported to use cognitive strategies ($M=4.82$) the most followed by meta-cognitive strategies ($M=4.20$). There was very low use of social/affective strategies ($M=2.63$) by these students. It is quite clear that both high listening proficiency students majoring in science-oriented and non-science-oriented appeared to use meta-cognitive and cognitive strategies more frequently, but the two groups of high listening proficiency students appeared to use very few social/affective strategies.

For high listening proficiency students majoring in science-oriented, the data received from the questionnaire revealed that the top three strategies in meta-cognitive categories that they used were *monitoring* ($M=4.69$), *planning* ($M=4.66$), *evaluating* ($M=4.51$). Furthermore, these three strategies were also reported using by high listening proficiency students majoring in science-oriented in the interview data. Thirty three students out of thirty five high listening proficiency students reported using *monitoring*, thirty one students out of thirty five high listening proficiency students pointed out using *planning* and thirty students out of thirty five high listening proficiency students showed using *evaluating*. However, in the cognitive strategies, which was their second priority, the top three strategies used by them were *elaboration* ($M=4.49$), *resourcing* (4.45) and *note-taking* (4.40). This information was also reported in the similar way in the interview data. Twenty seven students out of thirty five high listening proficiency students of science-oriented claimed using *elaboration*, twenty six students out of thirty five high listening proficiency students

of science-oriented revealed using *resourcing*, and twenty four students out of thirty five high listening proficiency students of science-oriented reported using *note-taking*.

For high listening proficiency students majoring in non-science-oriented, the data received from the questionnaire revealed that they used *resourcing* ($M=4.80$), *elaboration* ($M=4.77$), *note-taking* ($M=4.69$) the most in cognitive categories. Furthermore, these three strategies were also reported using by high listening proficiency students majoring in non-science-oriented in the interview data. Thirty two students out of thirty five high listening proficiency students reported using *resourcing*, thirty students out of thirty five high listening proficiency students pointed out using *elaboration*, and twenty nine students out of thirty five high listening proficiency students showed using *note-taking*. However, in the meta-cognitive strategies, which was their second priority, the top three strategies used by them were *planning* ($M=4.37$), *evaluating* (4.23) and *monitoring* (4.03). This information was also reported in the similar way in the interview data. Twenty seven students out of thirty five high listening proficiency students of non-science-oriented claimed using *planning*, twenty six students out of thirty five high listening proficiency students of non-science-oriented revealed using *evaluating*, and twenty four students out of thirty five high listening proficiency students of non-science-oriented reported using *monitoring*.

4.3.2 The use of LS between LLPS majoring in science-oriented and non-science-oriented

Although the low listening proficiency students reported their low use of LS in listening comprehension, there still existed significant difference in using cognitive

strategies between low listening proficiency students majoring in science-oriented and non-science-oriented from the questionnaire data as presented in table 4.5.

Table 4.5 The Mean Score and Standard Deviation of the three strategies of LS use between LLPS majoring in SO and NSO

Listening Strategies	Mean		Std.D		T-test P value
	SO	NSO	SO	NSO	
	LLPS(n=35)	LLPS(n=35)	LLPS(n=35)	LLPS(n=35)	
Meta-cognitive strategies	1.80	2.00	0.609	0.488	0.151
Cognitive strategies	1.70	2.20	0.556	0.627	0.001
Social/affective strategies	2.17	2.03	0.728	0.409	0.336

With regard to the strategies used by low listening proficiency students majoring in science-oriented, they appeared to use cognitive strategies (M=1.70) of the three categories strategies the least. On the contrary, low listening proficiency students majoring in non-science-oriented appeared to use cognitive strategies (M=2.20) of the three categories strategies the most. The difference between the low listening proficiency students majoring in science-oriented and non-science-oriented were significant in cognitive strategies ($p=.001<.05$). There are no differences between the low listening proficiency students majoring in science-oriented and non-science-oriented of use meta-cognitive and social-affective strategies.

In answering the interview questions, when low listening proficiency students of science-oriented do the listening comprehension, they showed very low strategy use. On the contrary, 18 low listening proficiency students of non-science-oriented showed that they would like to translate English words into Chinese when they meet new words during listening. For example: *“I translated English words into Chinese when I am doing the listening...”* This strategy belongs to cognitive strategies. The differences between low listening proficiency students majoring in science-oriented and non-science-oriented in using meta-cognitive and social/affective strategies didn't reach the significant level. It can be concluded that both low listening proficiency students majoring in science-oriented and non-science-oriented showed their low use of LS. The differences were only found in translation and repetition strategies (cognitive strategies) rather than other two strategies (meta-cognitive and social/affective). Thus, the result from the interview also supported the result of the questionnaire.

4.4 Summary

This chapter presented the results of the three research questions of the present study. This chapter ended with the summary. In the next chapter, discussion, pedagogical implications, conclusion, and recommendations of the study will be presented.

CHAPTER 5

DISCUSSION, IMPLICATIONS AND CONCLUSION

This chapter discusses the findings of the present study, and then draws a conclusion of the study. It consists of four sections. The first section did the discussion of the results in the previous chapter. It follows with pedagogical implications in the college EFL classrooms. Then, the conclusion and recommendations for further studies are proposed.

5.1 Discussion

This section provides a discussion of the results of the three research questions of the present study. It includes two parts: The first part mainly discusses the positive attitudes towards using LS in listening comprehension. The second part mainly discusses the factors related to the choice of LS.

5.1.1 Positive attitudes towards using LS in listening comprehension

The result of the questionnaire and the interview showed that the non-English majors (both high listening proficiency students and low listening proficiency students) believed that effectively applying listening strategies is very important for listening comprehension. Moreover, they were eager to be instructed LS in order to help them understand and cope with the oral texts. They also strongly disagreed that listening strategies could be naturally acquired.

The students' response indicated that both high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented hold positive attitudes towards the use of LS in listening comprehension. The results of the present study are different to the study of Graham (2006) which showed that none of the students had attributed much importance in the use of strategies. The subjects in Graham's study showed little awareness regarding the role played by ineffective LS. Therefore, it is notable that students in the present study were in the good conditions that they already realized their problems of poor listening ability. Great awareness of employing strategies effectively and guidance in how to develop strategies in areas of weakness might have boosted one's self-confidence and shown one how to take control of the language learning (Graham, 2006). Consequently, it is recommended that the teachers should provide students with effective LS instruction to help them successful in the process of listening comprehension.

5.1.2 Factors related to the choices of LS

5.1.2.1 Student's proficiency levels

The use of LS by the non-English majors in this study appeared to have distinct differences between the high listening proficiency students and low listening proficiency students. That is high listening proficiency students used more meta-cognitive, cognitive and social/affective strategies than low listening proficiency students in both major (science-oriented and non-science-oriented). The result is similar to the study of O'Mally, Chamot & Küpper (1989), Vandergrift (2003), and Wang (2002). In sum, apparently there are differences in the use of listening strategies between more- and less-proficient L2 learners.

In the present study, high listening proficiency students use more LS including meta-cognitive, cognitive and social/affective strategies than the low listening proficiency students in the present study. They reported high frequency use of meta-cognitive strategies: planning (advance organization, directed attention, selective attention, self-management), monitoring, evaluation; cognitive strategies: inferencing (linguistic inferencing, extra-linguistic inferencing, between parts inferencing), elaboration (personal elaboration, world elaboration, academic elaboration), translation, transfer, repetition, resourcing, deduction/induction, imagery. However, taking emotional temperature strategy was not reported by high listening proficiency students in using which was similar in low listening proficiency students. Since many studies of learning strategies have provided evidence in support of various learning strategies use by the good language learners. Therefore, it could be concluded that variety and appropriate LS use of good language learners help to explain their success in language learning. In terms of the low listening proficiency students, similarly, inappropriate learning strategies provided an explanation in understanding the frequent failures of poor language learners (Oxford & Nyikos, 1989).

5.1.2.2 Student's fields of study

More interesting, there were significant differences in using meta-cognitive, cognitive and social/affective strategies between high listening proficiency students of science-oriented and non-science-oriented students from the questionnaire data. Also significant difference has been found in using cognitive strategies between low listening proficiency students majoring in science-oriented and non-science-oriented from the questionnaire data. Previously, research studies have been carried

out to investigate the factors related to choice of language learning strategies. However, student' field of study which should be considered as one of the factors affecting the choice of language learning strategies was not found. The results of the present study had definitively shown that the student's fields of study were strongly related to English learners' choice of LS. Therefore, guiding the students with the key strategies that high listening proficiency students of both science-oriented and non-science-oriented used in listening comprehension would benefit science-oriented and non-science-oriented learners.

It could be said that there are significant differences not only between different proficiency levels but also between different student's fields of study. Student's fields of study are related to the choice of listening strategies. This is consistent with the study of Oxford and Nyikos (1989) which indicated that the field of study was related to choice of language learning strategies. The following part will present the pedagogical implications for the students in different listening proficiency and fields of study (science-oriented & non-science-oriented).

5.2 Pedagogical Implications

This study has shown that non-English majors have the positive attitudes on LS use in listening comprehension. It means that they were ready to accept LS if included in their English classrooms. Moreover, high listening proficiency students (both in science-oriented and non-science-oriented group) reported greater use of meta-cognitive, cognitive and social/affective strategies than the low listening proficiency students. Therefore, the English teachers who teach different non-English majors would do well to teach LS to the low listening proficiency students in the

process of listening comprehension. Teachers should present the strategies which the high listening proficiency students used in the process of listening comprehension in order to better the low listening proficiency students' performance. This is because several research studies including the present study revealed that successful language learners make use of the special language learning strategies that could explain their success. So, it is recommended that teachers instruct and help the low listening proficiency students with the LS used by high listening proficiency students. Consequently, proper use of the LS in the taxonomy adapted from Vandergrift (1996), O'Malley and Chamot (1990) is undoubtedly helpful in listening comprehension since the high listening proficiency students reported using all the LS in the taxonomy. Furthermore, significant differences between high listening proficiency students majoring in science-oriented and non-science-oriented and between low listening proficiency students majoring in science-oriented and non-science-oriented were found in the present study. Therefore, it is recommended that teachers are expected to consider the different fields of study of the non-English majors when they are guiding and assisting students in dealing with the listening comprehension problems. The following are some suggestions for the teachers in teaching practicing.

5.2.1 Encouraging LLPS to be aware of the LS use

Low listening proficiency students always see themselves as less successful in listening. Thus, the low listening proficiency students get the sense of passivity and helplessness in listening comprehension. Although the low listening proficiency students showed their low use of strategies, they showed positive attitudes towards LS in the present study. Moreover, from the study it was shown that the low listening proficiency students knew some of the strategies. If they are presented the LS in

listening comprehension and teacher encourage them to be aware of the LS use and let them practice LS in a step by step way, it will make them accumulate more and more of LS.

5.2.2 Suggested key strategies taught to students majoring in science-oriented

This study has shown that high listening proficiency students majoring in science-oriented reported that the highest three frequently used sub-categories strategies are: *monitoring, planning and evaluating*. These three strategies all belong to meta-cognitive strategies. Research studies have pointed out the potential of meta-cognitive (e.g. Wenden, 1987; Vandergrift, 1992, 1996) in language learning. Therefore, it is highly recommended that teachers should develop the students' awareness in using meta-cognitive strategies by presenting the following strategies to them.

For Monitoring strategy, Vandergrift (2003, p. 489) stated that “students need to continually evaluate what they are comprehending and check for consistency with their predictions and for internal consistency with the ongoing interpretation of the oral text or interaction.” Therefore, teachers can provide variety of listening tasks for the students. After finishing the listening tasks, teachers can make the students discuss whether they check or verify their comprehension by providing the written words of the listening tasks.

Planning strategies are crucial for good listening comprehension. The teachers should train the students to figure out the possible elements concerning the topic of a listening text in advance, and make plan about the strategy use to solve the problems. In this case, providing pre-listening tasks for the students to prepare them in dealing

with the coming information is necessary since pre-listening activities are crucial for the whole listening process.

Evaluating strategy is also recommended for the teachers to prepare for the students. Because “students need to evaluate the results of the decisions made during the course of listening to an oral text” (Vandergrift, 1996, p. 217). Consequently, teachers should arrange the activities for the students on evaluation or reflection of LS use after the listening practice.

5.2.3 Suggested key strategies taught to students majoring in non-science-oriented

High listening proficiency students majoring in non-science-oriented reported a greater use of cognitive strategies. As the data was presented in Chapter 4, high listening proficiency students of non-science-oriented reported that the highest three frequently used sub-categories strategies are: *resourcing*, *elaboration* and *note-taking*. These three strategies all belong to cognitive strategies. Since the more skilled listener is a more dynamic listener who is both purposeful and flexible in approach to the task (Vandergrift, 1996), the strategies reported by the high listening proficiency students majoring in non-science-oriented in the present study provided a reference for the language teacher who is teaching listening to the non-science-oriented students. The following key strategies reported by high listening proficiency students in non-science-oriented in this study are recommended to be used by the teachers to instruct the students’ LS use.

Resourcing is a good strategy that helps the students in listening comprehension in their practicing time. Moreover, this strategy is also a good habit for the students in the course of listening comprehension. So, teachers should ask the

student keep this good habit as their strategy they can use. Prepare more exercises, and let the students resource everything they can get. Students will find listening is no longer a horrible thing for sure.

Appropriate *elaboration* such as using world knowledge and life experience can help a lot in listening comprehension. Therefore, teachers can encourage and suggest the students to read a lot and give them opportunities to discuss their experience in life. Accumulated day by day, when the students come across the listening tasks they were experienced or discussed before, they will feel confident in listening.

In order to accomplish a given listening task, teachers need to instruct the students to employ some strategies which are easy to follow, such as *Note-taking* strategy. This strategy asks the learners to write down key words and concepts in abbreviated verbal, graphic, or numerical form. In this way, students will be motivated to create their own ways to take notes since they are facing the rapidly incoming data. Therefore, *note-taking* is highly recommended for the teachers to encourage the students to use in their own ways.

However, it is notable that the above suggested meta-cognitive and cognitive strategies are the strategies both high listening proficiency students of science-oriented and non-science-oriented in the present study reported using the most as the data presented in 4.3.1. Therefore, the above six suggested key strategies are also highly recommended for both science-oriented and non-science-oriented students. The teachers should incorporate all the six strategies in their teaching.

In sum, successful listening comprehension calls for the appropriate use of the listening strategies. According to Vandergrift (1996), teachers should discuss the

concept of strategy with their students and help them to discover the kinds of strategies they use to understand spoken discourse. Therefore, in order to prepare students to cope well with listening comprehension, the teachers should be aware that LS is an important aspect and making students aware of LS could lead them to success.

5.3 Conclusion

This study aimed at investigating non-English majors' use of listening strategies in listening comprehension. Two hundred and eighty non-English majors were involved in the study. The research study collected the data by means of questionnaire and semi-structured interview. The purposes of the study were to investigate the general attitudes of the non-English majors towards applying LS in comprehension, and to explore if there were any differences in LS use between high listening proficiency students and low listening proficiency students majoring in science-oriented and non-science-oriented, the differences between high listening proficiency students majoring in science-oriented and non-science-oriented and between low listening proficiency students majoring in science-oriented and non-science-oriented. The findings of the study provided useful and valuable information for listening teaching and learning for the non-English majors. The data collected from questionnaire and semi-structured interview were analyzed both quantitatively and qualitatively. The findings showed that the non-English majors had their favorable attitudes towards using LS in listening comprehension.

Moreover, the results of this study also showed that differences existed between high listening proficiency students and low listening proficiency students not

only in science-oriented and non-science-oriented fields of study, but also between high listening proficiency students majoring in science-oriented and non-science-oriented, and low listening proficiency students majoring in science-oriented and non-science-oriented. High listening proficiency (both majoring in science-oriented and non-science-oriented) used meta-cognitive, cognitive and social/affective strategies more often than the low listening proficiency students. High listening proficiency students majoring in science-oriented and non-science-oriented had their favorable listening strategies. And there was a difference in using cognitive strategies between low listening proficiency students majoring in science-oriented and non-science-oriented.

5.4 Recommendations for Further Studies

Further studies need to be done based on the limitations of the present study.

Firstly, different learners should be covered in order to improve generalization.

Secondly, other strategy taxonomy is recommended to be used to investigate students' use of LS in listening comprehension so as to make the useful identification of the strategic behaviors by different learners.

Thirdly, it is recommended to conduct further research studies by using more fruitful methodology for tapping the more covert processes and strategies involved in listening such as think-aloud protocols since it might provide more in-depth information.



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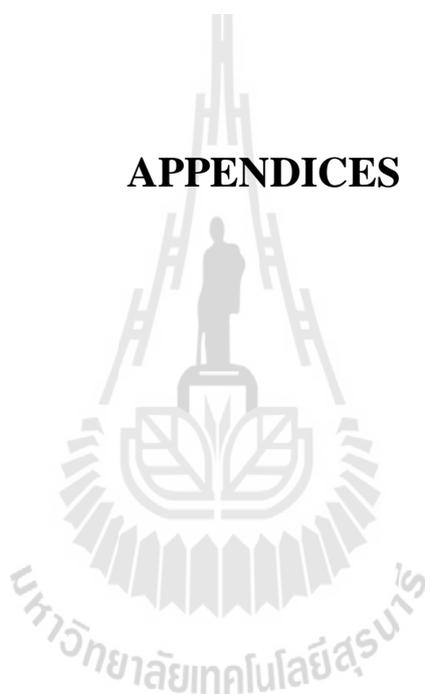
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APPENDICES



APPENDIX A

University Non-English Majors' English

Listening Strategy Questionnaire

(English Version)

Part 1: Student Profile Questionnaire:

Directions: Please provide the information about yourself by ticking (✓) or write the response where necessary.

Major: _____ non-science science

Score of listening part in CET4: _____

Part 2: The Students' English Listening Strategies Questionnaire

Directions: This questionnaire is designed to gather information about your listening strategies. Please read each statement carefully and tick (✓) to the response which describes your opinions. The number 5 to 1 stand for the following responses:

5=always appropriate to me

4=often appropriate to me

3=sometimes appropriate to me

2=seldom appropriate to me

1=not appropriate to me

Students' Listening Strategies

No.	Students' Listening Strategies	Self-assessment				
Meta-cognitive Strategies						
1	Planning: Before listening, I developed an appropriate action plan to accomplish the listening task.	5	4	3	2	1
2	Advance organization: I preview the words and the topic knowledge before listening.	5	4	3	2	1
3	Directed Attention: I try to refocus my attention when I find myself absent-minded while listening	5	4	3	2	1
4	Selective Attention: I pay attention to those stressed or repeated words or phrases when I listen to the material.	5	4	3	2	1
5	Self-management: I control myself to get in the mind to understand the listening material.	5	4	3	2	1
6	Monitoring: When I find the viewpoint of the material not in agreement with my own point of view, I make adjustment.	5	4	3	2	1
7	Evaluating: After finishing listening, I think about whether the approaches used are efficient.	5	4	3	2	1
Cognitive Strategies						
8	Inferencing: When I hear a difficult word or sentence, I try to work it out according to my personal experience, the world knowledge, and / or by the context.	5	4	3	2	1
9	Linguistic inferencing: When I practice listening alone or answer the testing paper, I repeat the material word by word or translate them into Chinese in my mind.	5	4	3	2	1
10	Extra-linguistic inferencing: I use background sounds and relationships between speakers in the listening materials to guess the meaning of unknown words.	5	4	3	2	1
11	Between parts inferencing: I use information in the whole listening situation to guess the meaning of unknown words.	5	4	3	2	1
12	Elaboration: I relate new information to other concepts in memory.	5	4	3	2	1
13	Personal elaboration: I associate the unknown words with my prior experience.	5	4	3	2	1
14	World elaboration: I use the knowledge gained from experience in the world to help me to understand the listening material.	5	4	3	2	1
15	Academic elaboration: I use the knowledge gained in academic situations to help me understand the listening material.	5	4	3	2	1
16	Translation: I translate the material word by word into Chinese in my mind when I practice listening or answer the testing paper.	5	4	3	2	1
17	Transfer: While listening to the material, I use Chinese to memorize the whole content.	5	4	3	2	1

Cognitive Strategies						
18	Repetition: I repeat a word or phrase when performing a listening task.	5	4	3	2	1
19	Resourcing: I use available reference sources of information to help me understanding the listening material. (Such as, dictionaries, textbooks, etc.)	5	4	3	2	1
20	Note-taking: I jot down key words or problematic parts for resourcing later when practicing listening/ or doing listening test.	5	4	3	2	1
21	Deduction/induction: I use the learned knowledge to understand the listening material.	5	4	3	2	1
22	Imagery: I place a word or phrase in a meaningful language sequence.	5	4	3	2	1
Social/ Affective Strategies						
23	Questioning for clarification: In the process of listening practice, if I misunderstand the material, I ask my teacher and classmates for help to fully understand it.	5	4	3	2	1
24	Cooperation: After finishing the listening, I discuss with my classmates the viewpoint of the material.	5	4	3	2	1
25	Lowering anxiety: When I feel anxious in listening test or practice, I use some mental techniques that make me feel more competent to perform a listening task. e.g. take deep breaths.	5	4	3	2	1
26	Self-encouragement: If I cannot understand something, I think that others cannot, either.	5	4	3	2	1
27	Taking emotional temperature: When I find I can't deal with the listening material in the classroom, I take it home to work out later.	5	4	3	2	1

Part 3: The Student's Attitudes on English Listening Strategies Questionnaire

Directions: This questionnaire is designed to gather information about your opinions on listening strategies. Please read each statement carefully and tick (✓) to the response which describes your opinions. The number 5 to 1 stand for the following responses:

5=strongly agree

4=agree

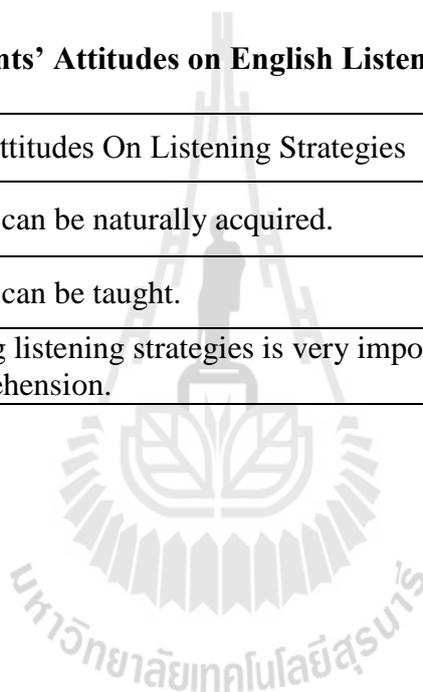
3=undecided

2=disagree

1=strongly disagree

Students' Attitudes on English Listening Strategies

No.	Students' Attitudes On Listening Strategies	attitude				
		5	4	3	2	1
28	Listening strategies can be naturally acquired.	5	4	3	2	1
29	Listening strategies can be taught.	5	4	3	2	1
30	Effectively applying listening strategies is very important for listening comprehension.	5	4	3	2	1



APPENDIX B

University Non-English Majors' English

Listening Strategy Questionnaire

(Chinese Version)

非英语专业大学生英语听力策略调查问卷

亲爱的同学，你好！

为了让老师更好地了解你的英语听力学习情况，提高英语听力水平，特制定《非英语专业大学生英语听力策略调查问卷》调查表。请仔细阅读后，根据你的实际情况如实填写。

你填写的问卷将对我的研究有极大的帮助，谢谢你的支持和合作！

第一部分：学生个人资料

请在下列横线上填写上相关信息，在相应的“□”划（√）。

专业：_____ 文科 理科 四级听力成绩：_____

第二部分：学生听力策略

以下是常见的英语听力策略，请仔细阅读每一句话，并从自我评价的5分量表中选择一个适合于你的数字并划（√），以表示你对这句话的认同程度。

5=非常适用于我 4=通常适用于我 3=有时适用于我 2=很少适用于我 1=非常不适用于我

策略	分类	调查内容	自我评价				
			5	4	3	2	1
元认知策略	计划	1 听听力材料前，我都预先作准备。	5	4	3	2	1
		2 听材料前，我会预先看单词和与题目相关的知识。	5	4	3	2	1
		3 当我发觉自己听力走神时，我会努力集中注意力。	5	4	3	2	1
		4 当我听听力材料时，我会注意那些重读的单词或短语。	5	4	3	2	1
		5 我能控制自己不受外界的干扰，专注于听听力材料。	5	4	3	2	1
	控制	6 在听英语材料时，如果听到的内容与自己的预测不同，我会纠正对文章的理解。	5	4	3	2	1
	评价	7 听力结束时，我会检测使用过的听力方法是否有效	5	4	3	2	1
认知策略	推测	8 我会通过个人经历，背景知识或上下文来推测听力材料内容。	5	4	3	2	1
		9 在听音时，我用已知单词来推测未知单词。	5	4	3	2	1
		10 我利用听力材料中的背景声音和说话者之间的关系猜测生词的意思。	5	4	3	2	1
		11 我利用听力材料场景的信息来猜测生词/句子的意思。	5	4	3	2	1
社会策略	推敲	12 利用已有的知识来帮助理解听力材料。	5	4	3	2	1
		13 我利用自身的经历来帮助理解听力材料。	5	4	3	2	1
		14 我利用在社会经历中获得的知识来帮助理解听力材料。	5	4	3	2	1
		15 我利用学习中获得的知识来帮助理解听力材料。	5	4	3	2	1
	翻译	16 当我练习听力或做听力测试题时，我会在脑海中逐字逐句翻译成中文。	5	4	3	2	1
	转换	17 当我听英语材料时，我会将听力信息转化成中文。	5	4	3	2	1
	重复	18 在听音时，我反复念出听力材料中的一些单词或短语。	5	4	3	2	1
	查阅资料	19 在听音时，我利用可用的资源帮助我理解听力材料。（比如：字典，课本等等。）	5	4	3	2	1
	记笔记	20 在听音时，我会写下关键词或是有疑问的部分以便查阅。	5	4	3	2	1
	推论/归纳	21 我用学过的知识来帮助理解听力材料。	5	4	3	2	1
	形象化	22 将听力内容形象化来帮助理解。	5	4	3	2	1
	社会	提问	23 在听力练习过程中， 如果我有听力困难，我会向老师或同学寻求帮助。	5	4	3	2

情感策略	合作	24 结束听力后，我会和同学讨论听力材料的观点及内容。	5	4	3	2	1
	降低焦虑	25 当我在听力训练或听力测试感到焦虑时，我会努力使自己减少这种焦虑。（比如：深呼吸。）	5	4	3	2	1
	自我鼓励	26 完成听力后自我鼓励或奖励自己。	5	4	3	2	1
	把握情绪	27 当听音遇到困难时，保持一个积极的心态（比如换时间或地点重听）。	5	4	3	2	1

第三部分：学生听力策略观念

以下是常见的英语听力策略观点，请仔细阅读每一句话，并从自我评价的 5 分量表中选择一个适合于你的数字并划（√），以表示你对这句话的认同程度。**5=非常赞同；4=赞同；3=说不清楚；2=不赞同；1=非常不赞同**

序号	听力策略观念	自我评价				
		5	4	3	2	1
28	听力策略是自然形成的，不需要学习	5	4	3	2	1
29	听力策略是可以学习的	5	4	3	2	1
30	听力策略对于提高听力理解乃至英语学习都非常重要	5	4	3	2	1

APPENDIX C

List of Questions for the Semi-structured Interview

(English Version)

1. What is the first thing that you do when you begin a listening task?
2. When you complete a listening activity (exercise) in class or in a test, what kind of difficulties do you have? How do you solve them? (Such as, unfamiliar words, becoming anxious when cannot understand listening task, etc.)
3. What kind of listening strategies do you usually apply to help you understanding the listening materials?
4. Do you think it is necessary to apply English listening strategies for your listening comprehension? Why or why not?
5. Do you think teacher has to instruct listening strategies?

APPENDIX D

List of Questions for the Semi-structured Interview

(Chinese Version)

非英语专业大学生英语听力策略访谈题目

1. 在做听力练习或是听力测试前，你会做什么准备？
2. 当你做听力练习或是听力测试时，经常会遇到什么困难？如何解决这些困难？(比如：遇到生词，因听不懂感到焦虑等。)
3. 你经常采用哪些方法来帮助你进行听力理解？
4. 你认为有必要运用英语听力策略吗？为什么？
5. 你认为老师有必要在听力策略上进行指导吗？

APPENDIX E

The Students' Listening Proficiency Levels

Students' Proficiency Levels (NSO)	Teacher's Perception		CET4 Listening Score	Student Proficiency Levels (SO)	Teacher's Perception		CET4 Listening Score
	High	Low			High	Low	
LLPS		✓	90	HLPS	✓		140
LLPS		✓	87	LLPS		✓	85
HLPS	✓		171	HLPS	✓		138
LLPS		✓	80	HLPS	✓		135
HLPS	✓		165	LLPS		✓	86
LLPS		✓	87	LLPS		✓	87
LLPS		✓	84	HLPS	✓		147
HLPS	✓		169	LLPS		✓	87
HLPS	✓		164	LLPS		✓	87
HLPS	✓		153	HLPS	✓		152
LLPS		✓	70	LLPS		✓	90
LLPS		✓	85	LLPS		✓	90
HLPS	✓		152	HLPS	✓		148
LLPS		✓	82	LLPS		✓	80
HLPS	✓		147	HLPS	✓		155
LLPS		✓	79	LLPS		✓	79
HLPS	✓		160	LLPS		✓	75
LLPS		✓	92	LLPS		✓	83
LLPS		✓	88	HLPS	✓		151

HLPS	✓		158	LLPS		✓	77
HLPS	✓		149	HLPS	✓		148
HLPS	✓		164	HLPS	✓		137
HLPS	✓		143	HLPS	✓		154
LLPS		✓	76	LLPS		✓	70
HLPS	✓		138	LLPS		✓	72
LLPS		✓	91	LLPS		✓	83
LLPS		✓	85	HLPS	✓		157
HLPS	✓		142	HLPS	✓		146
LLPS		✓	96	HLPS	✓		140
HLPS	✓		147	HLPS	✓		162
LLPS		✓	77	LLPS		✓	90
LLPS		✓	75	HLPS	✓		144
HLPS	✓		159	LLPS		✓	88
HLPS	✓		150	HLPS	✓		150
HLPS	✓		143	LLPS		✓	72
HLPS	✓		127	HLPS	✓		145
LLPS		✓	73	LLPS		✓	84
HLPS	✓		139	LLPS		✓	90
LLPS		✓	82	HLPS	✓		157
LLPS		✓	80	HLPS	✓		146
HLPS	✓		140	LLPS		✓	87
LLPS		✓	76	LLPS		✓	83
HLPS	✓		139	HLPS	✓		143
HLPS	✓		155	HLPS	✓		151
LLPS		✓	78	LLPS		✓	88
HLPS	✓		147	HLPS	✓		145

HLPS	✓		167	LLPS		✓	78
HLPS	✓		143	LLPS		✓	80
HLPS	✓		164	HLPS	✓		153
LLPS		✓	70	LLPS		✓	85
LLPS		✓	74	HLPS	✓		143
LLPS		✓	83	HLPS	✓		140
LLPS		✓	76	LLPS		✓	86
HLPS	✓		154	HLPS	✓		155
LLPS		✓	91	LLPS		✓	87
HLPS	✓		152	HLPS	✓		147
LLPS		✓	86	LLPS		✓	79
LLPS		✓	82	LLPS		✓	72
HLPS	✓		156	HLPS	✓		159
HLPS	✓		166	LLPS		✓	81
HLPS	✓		149	HLPS	✓		150
HLPS	✓		168	HLPS	✓		148
LLPS		✓	88	LLPS		✓	77
LLPS		✓	95	LLPS		✓	72
LLPS		✓	75	LLPS		✓	90
LLPS		✓	70	HLPS	✓		161
HLPS	✓		160	HLPS	✓		154
LLPS		✓	84	HLPS	✓		148
HLPS	✓		154	HLPS	✓		139
LLPS		✓	77	LLPS		✓	70

APPENDIX F

Item Analysis (IAS) and Item-Objective

Congruence Index (IOC)

Check of the Questionnaire

No.	Expert No.1	Expert No.2	Expert No. 3	Result
1.....	1	1	1	√
2.....	1	1	0	√
3.....	1	1	1	√
4.....	0	1	1	√
5.....	1	1	1	√
6.....	1	1	0	√
7.....	1	0	1	√
8.....	1	1	1	√
9.....	-1	1	1	√
10.....	1	1	1	√
11.....	1	1	0	√
12.....	0	1	1	√
13.....	1	1	1	√
14.....	1	1	1	√
15.....	1	0	1	√
16.....	1	1	0	√
17.....	1	1	1	√
18.....	1	-1	1	√
19.....	0	1	1	√
20.....	1	1	1	√
21.....	1	1	0	√
22.....	1	0	1	√
23.....	1	1	1	√
24.....	0	1	1	√
25.....	1	1	1	√
26.....	1	1	1	√
27.....	1	-1	1	√

28.....	1	1	1	√
29.....	1	0	1	√
30.....	1	1	1	√
Total	24	23	25	

Notes:

- 1: "1" for the item is congruence with objective
2. "-1" for the item is not congruence with objective
3. "0" for the expert not sure

Result of IOC:

$$(IOC = \sum R/N)$$

Item number= 30

R= 24+23+ 25= 72(total scores from experts)

N=3 (the number of experts)

$$IOC = 72/3 = 24$$

Percentage: $24/30 \times 100\% = 80\%$

**Item Analysis (IAS) and Item-Objective Congruence Index (IOC)
Check of the Interview Questions**

No.	Expert No.1	Expert No.2	Expert No. 3	Result
1.....	1	1	1	√
2.....	1	1	0	√
3.....	0	1	1	√
4.....	1	0	1	√
5.....	1	1	1	√
Total	4	4	4	

Notes:

- 1: "1" for the item is congruence with objective
2. "-1" for the item is not congruence with objective
3. "0" for the expert not sure

Result of IOC:

$$(IOC = \sum R/N)$$

Item number= 5

R= 4+4+ 4= 12(total scores from experts)

N=3 (the number of experts)

$$IOC = 12/3 = 4$$

Percentage: $4/5 \times 100\% = 80\%$

APPENDIX G

Consent Form for Participants

Research Title: *Listening Strategies of EFL Non-English Majors*

Researcher: *Yiqi Wang*

The researcher is required to obtain signed consent for participation in research involving human subjects.

The purpose of this study is to investigate how the university students majoring in non-English applied their learning strategies, and to explore the general attitudes of the non-English majors towards applying listening strategies in listening comprehension. The results and findings of this study will be beneficial to the development of teachers' teaching quality and the development of learners' listening ability.

To participant in this study, you just need to answer the questionnaires and the interview questions honestly. The information collected will not be used for any other uses, which will be treated with the strictest confidence.

If you have any questions regarding the research, please contact the researcher by sending E-mail (wengyiyiqi@163.com).

After reading the statements above, please indicate your consent by signing this form.

I certify that I have read and understand this consent form and agree to participate as a subject in the research described. My participation in this research is given voluntarily.

Signature: _____

Date: _____