THE DEVELOPMENT OF A WEB-BASED

AUTONOMOUS LISTENING COMPREHENSION

FOR CHINESE HIGH SCHOOL STUDENTS

Lele Guo

A Thesis Submitted in Partial Fulfillment of the Requirements for

the Degree of Master of Arts in English Language Studies

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การพัฒนาการฟังเพื่อความเข้าใจด้วยตนเองบนเว็บไซต์สำหรับ
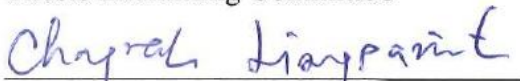# นักเรียนมัธยมศึกษาตอนปลายชาวจีน

นางสาวเลอเลอ กัว

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต

สาขาวิชาภาษาอังกฤษศึกษา

มหาวิทยาลัยเทคโนโลยีสุรนารี

ปีการศึกษา 2563

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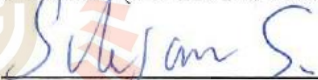
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เลอเลอ กัว : การพัฒนาการฟังเพื่อความเข้าใจด้วยตนเองบนเว็บไซต์สำหรับนักเรียน
มัธยมศึกษาตอนปลายชาวจีน (THE DEVELOPMENT OF A WEB-BASED
AUTONOMOUS LISTENING COMPREHENSION FOR CHINESE HIGH SCHOOL
STUDENTS) อาจารย์ที่ปรึกษา : ศาสตราจารย์ ดร. ANDREW LIAN, 199 หน้า

งานวิจัยนี้ศึกษาหลักการเรียนการสอนผ่านเว็บไซต์ในสภาพแวดล้อมที่ใช้คอมพิวเตอร์
เพื่อพัฒนาทักษะการฟังภาษาอังกฤษเพื่อความเข้าใจด้วยตนเองของผู้เรียนชาวจีนในระดับ
มัธยมศึกษาซึ่งเรียนภาษาอังกฤษเป็นภาษาต่างประเทศ รวมทั้งศึกษาผลกระทบของการใช้รูปแบบ
การเรียนการสอนแบบนำเสนอมโนติล่วงหน้า (Advance organizers) ต่อการเพิ่มพูนทักษะการฟัง
ภาษาอังกฤษเพื่อความเข้าใจของผู้เรียน นอกจากนี้ งานวิจัยยังได้สำรวจข้อคิดเห็นของผู้เรียนและ
ผู้สอนที่มีต่อการใช้หลักการเรียนการสอนดังกล่าว ผู้เข้าร่วมงานวิจัยเป็นผู้เรียนชั้นปีที่หนึ่งในระดับ
มัธยมศึกษาจำนวน 94 คน จากโรงเรียนมัธยมจื้อฉาง (Zhuchang Middle School) สาธารณรัฐ
ประชาชนจีน นักวิจัยได้แบ่งผู้เข้าร่วมงานวิจัยออกเป็น 3 กลุ่ม คือ สุ่มเลือก 1 กลุ่มควบคุม และ 2
กลุ่มทดลอง ผู้เรียนจากกลุ่มทดลองทั้ง 2 กลุ่ม ได้เข้าเรียนหลักสูตรการฟังภาษาอังกฤษ (English-
Listening Course, ELC) และได้รับการฝึกทักษะการฟังโดยใช้เว็บไซต์ฝึกทักษะการฟังในช่วงนอก
เวลาเรียน ทั้งนี้ ผู้เรียนจากกลุ่มทดลองกลุ่มที่ 1 (First experimental group, EG1) ได้เรียนด้วย
รูปแบบการเรียนการสอนแบบนำเสนอมโนติล่วงหน้าในขณะที่ผู้เรียนจากกลุ่มทดลองกลุ่มที่ 2
(Second experimental group, EG2) ไม่ได้เรียนด้วยรูปแบบดังกล่าว และผู้เรียนจากกลุ่มควบคุมได้
เรียนหลักสูตรการฟังภาษาอังกฤษโดยใช้วิธีการเรียนการสอนแบบดั้งเดิมในชั้นเรียน การทดสอบ
ดังกล่าวใช้ระยะเวลา 10 สัปดาห์

นักวิจัยใช้วิธีวิจัยแบบผสมผสาน (Mix-method approach) ในการเก็บข้อมูล มีการใช้
แบบทดสอบก่อนและหลังเรียนเพื่อเปรียบเทียบระดับความสามารถในการฟังภาษาอังกฤษของ
ผู้เรียนก่อนและหลังการทำวิจัย นอกจากนี้ยังได้ใช้แบบสอบถาม การสัมภาษณ์แบบกึ่งโครงสร้าง
(Semi-structured interview) และบันทึกส่วนตัวของผู้เรียนในการศึกษาพัฒนาการทักษะการฟัง
ภาษาอังกฤษเพื่อความเข้าใจ ความสามารถในการเรียนรู้ด้วยตนเอง รวมทั้งข้อคิดเห็นของผู้เรียน
และผู้สอนต่อรูปแบบการเรียนการสอนที่ใช้ ผลการวิจัยเปิดเผยว่า ภายหลังการเรียนการสอน
ระยะเวลา 10 สัปดาห์ ผู้เรียนจากกลุ่มทดลองกลุ่มที่ 2 มีพัฒนาการด้านการฟังภาษาอังกฤษเพื่อความ

เข้าใจและการเรียนรู้ด้วยตนเองสูงกว่าผู้เรียนทั้งจากกลุ่มทดลองกลุ่มที่ 1 และกลุ่มควบคุมอย่างมี นัยสำคัญ ในขณะที่ทักษะการฟังภาษาอังกฤษเพื่อความเข้าใจของผู้เรียนจากกลุ่มควบคุมไม่ได้ เพิ่มขึ้นอย่างมีนัยสำคัญ สำหรับรูปแบบการเรียนการสอนแบบนำเสนอมโนมติล่วงหน้าในชั้นเรียน ผู้วิจัยพบว่าทักษะการฟังเพื่อความเข้าใจของผู้เรียน ไม่ได้เพิ่มขึ้นอย่างมีนัยสำคัญ อย่างไรก็ตาม ผู้เรียนยังมีความประสงค์จะใช้วิธีดังกล่าวในอนาคตในชั้นเรียนวิชาการฟังภาษาอังกฤษ

สาขาวิชาภาษาต่างประเทศ

ปีการศึกษา 2563

ลายมือชื่อนักศึกษา_____

ลายมือชื่ออาจารย์ที่ปรึกษา_____

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม_____

LELE GUO : THE DEVELOPMENT OF A WEB-BASED AUTONOMOUS

LISTENING COMPREHENSION FOR CHINESE HIGH SCHOOL

STUDENTS. THESIS ADVISOR : PROF. ANDREW LIAN, Ph.D., 199 PP.

ENGLISH LISTENING COMPREHENSION SKILLS/ ADVANCE ORGANIZERS/

LEARNER AUTONOMY/ CALL

This study investigated an approach for Chinese high school EFL learners' autonomous listening comprehension skills under a CALL environment and explored the effects of advance organizers on the development of students' English listening comprehension skills. In addition, the students' and the teacher's opinions of this approach were investigated. 94 first-year senior high school students in Zhuchang middle school in China as subjects were divided into three groups and randomly assigned as one control group and two experimental groups. Both two experimental groups participated in an English-Listening Course (ELC), which was trained on the personal listening website out of the class. The EG1 (the first experimental group) employed advance organizers during the intervention, while the EG2 (the second experimental group) did not use during the intervention. The control group (CG) participated in a conventional ELC in the classroom. The duration of the treatment was 10 weeks.

A mixed method was conducted to collect data in order to answer the research questions. A pretest and a posttest of English listening were designed to investigate the differences in students' English-listening proficiency before and after the 10 weeks. Questionnaires, semi-structured interviews, and student's diaries were used to investigate the development of students' English listening comprehension skills, the

sense of learner autonomy as well as students and teacher's opinions of the intervention. The findings revealed that after 10 weeks' intervention, EG2 outperformed EG1 and CG significantly in terms of English-listening comprehension skills and their sense of learner autonomy. However, CG made no significant improvement in English listening comprehension skills. Based on the use of advance organizers, the findings also pointed out that students were not improved significantly in English listening comprehension skills after the intervention, while they expressed their willingness to use it in English-listening learning in future.

School of Foreign Languages

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Student's Signature _____

Advisor's Signature _____

Co-Advisor's Signature _____

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What's more, with many thanks to my thesis examination committee: Assoc. Prof. Dr. Punyathon Sangarun, Dr. Suksan Suppasetseree and Chonggrak Liangpaint for their guidance during this research. Each of the members of my dissertation committee has provided me extensive personal and professional guidance and helps me improve the quality of my work. Besides, I would like to express sincere gratitude to all of the students and teachers who sacrificed their time and participated in my study in different aspects when I was conducting the experiment in Zhuchang middle school. Without this, the research would not have been possible.

Finally, my biggest thanks to my family and friends for all the support they have shown me through this research. Their love and guidance are with me in whatever I pursue through this research of the three-year learning.

Lele Guo

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LIST OF ABBREVIATIONS

EFL	English as Foreign Language
CALL	Computer-Assisted Language Learning
EFL	English as a Foreign Language
CEE	College Entrance Examinations
MOE	The Ministry of Education of China
NSEC	New Senior English for China Student's Book
IP	Information Processing
ZPD	The Zone of Proximal Development
CD-ROM	Compact Disc Read-Only Memory
IOC	Item-objective congruence
SPSS	Statistical Package for the Social Sciences
AMHSA	The Alberta Municipal Health and Safety Association
JHSEE	Junior High School Entrance Examination

CHAPTER 1

INTRODUCTION

The present study targets at the development of an approach based on autonomous listening comprehension CALL program for Chinese high school EFL learners. The aim of this chapter is to provide a general background for the present study. After that, a statement of the problem, the purposes of the study, the research questions, the significance of the study, the scope of the study and the definitions of key terms will be presented.

1.1 Background of the study

As an international language, English plays a critical role in China and has been a compulsory course for all Chinese students. Whether the purpose is for academic fields, flexibly supporting international economy and trade, or comprehensively communicating within different cultural thoughts, English education, focusing on the four skills (listening, speaking, reading and writing), has been paid greater attention in China since 1983. It was also set up in school curriculum and has been regarded as an essential subject for high school and college entrance examinations (CEE) presented by the 1983 Chinese education reform. Listening skills as a part of spoken language is

becoming more and more important since technology advances and trade and exchanges between countries increase in many situations, like face-to face conversations, on the cellphone, in business meetings, lectures and so on.

According to features of listening as a receptive skill among the four skills (listening, speaking, reading, and writing), it is key to receive messages effectively and to understand spoken English in second or foreign language countries. It involves a sender, a message and a receiver (Tyagi, 2013), and is a dynamic process of meaning making from hearing what another person says to construct messages with the person who is speaking. The acquisition of listening skills in second/foreign language is vital both in language learning and in daily communication for millions of learners around the world (Hamouda, 2013). According to Walker (2014), listening spent more than 45% of daily communication time; speaking occupied 35%; reading is dedicated with 16%; and writing is taken only with 9% of daily communication. Therefore, listening can be regarded as a very important role in communication (Mendelson, 1994).

However, a series of more complex features of listening process contributes tough jobs during teaching times, so as to be complained that it is one of the toughest skill and more challenging skills. Features are expressed in that listening learners have to learn to discriminate between sounds, understand vocabulary and grammatical structures, interpret stress and intonation, retain and interpret this within the immediate as well as the larger socio-cultural context of the utterance (Tagor, Andromeda &

Kammer, 2017). Furthermore, it was until the 1970s that listening comprehension began to be explored (Osada, 2004). Vandergrift (2007) has also pointed out that listening skills have been concentrated the "least researched of all four language skills". Compared with the other three skills, it is newly found and has long been ignored under paper-and-pencil test including reading and writing practice.

As is known, China has the largest number of English learners in the world. English education has long been set up as a compulsory subject for the third-grade to the college, even more far levels. Nevertheless, English education here is mainly "written" English or gets a high score on the English paper so students are able to choose the school they desire, regardless of English listening comprehension for real communication in learning process of second/foreign language. Therefore, the Ministry of Education (MOE) of China has made a number of substantial changes in English education requirements for full-time middle school, including how to manage four skills in a reasonable proportion during the process of English teaching. The basic framework of teaching listening has been offered for English instruction in the requirements of the full-time high school curriculum. Length of time in English instruction per week needs to be at least 2 hours. The aspects of abilities of students' listening comprehension in high school are required as follows. First, students are required to understand some key terminologies in English instruction and respond appropriately. As for the listening materials, they need to understand the narrative of easy English articles and figure out

questions raised by the texts. Besides, they have to know the knowledge provided in English textbook in details, listen and repeat it occasionally. According to the content of the listening materials, students are asked to perceive the content of a topic, including identifying important information and opinions in specific contexts and making their own inferences. In addition, the requirement for teachers is to prepare some comprehensible listening materials for students, not to have too many new words, and choose topics that are familiar to students. The speed of speech is specified as 110-120 words per minute. Students also need to overcome general accent interference, and are required to grasp the speakers' basic views and intentions during English news broadcasts (MOE, 2012). This is also one of the requirements to be followed in the current study.

Due to the reform of listening in English education in China, teaching methods have gradually become diversified. Learner autonomy as one of the significant factors is gradually shifting the traditional thinking of language learning and learning environment. It not only offers people with independent learning opportunities, but also presents people with challenges to re-new the technique they teach and learn English in the past. For example, students are provided with opportunity to study on their own and benefit from the materials and time that the teacher gives. They do not need to aspire to please the teacher or to get a good mark. They can simply make an effort in order to learn something. It is important for them to pass exam and prepare them to listen to

English in real situations instead of what the students did in class. However, it does not mean totally student-centered without teachers' help. It refers that students may cooperate with the teacher; sometimes students need to obediently follow instructions, like asking about aims of the activity first, or coming up with some suggestions on how to develop their learning. Dakin (1973) also says, "though the teacher may control the experiences the learner is exposed to, it is the learner who selects what is learnt for them" (p. 16). It means that students must participate in their learning process and are responsible for what is learned. What's more, students tend to follow their own agendas rather than those of their teachers (Nunan, 1996). That is to say, when encountering learning content that students are not good at or need to think about, they should first concentrate on and try their best to complete tasks independently, and make their own contributions to their learning, rather than wait for the teacher who tell them what to do.

1.2 Statement of the problem

In China, according to the standard English test for high school students per year, proportion of listening is relatively lower (20%), compared to reading (50%) and writing (30%) (Ping, 2010). Therefore, in daily English training, teachers and students do not paid much attention to listening training or even ignore it. However, as technology advances and globalization between countries increase, EFL education has become increasingly significant. The aims of teaching students English are not only to

help students pass entrance examinations, but also to benefit them for their real lives. The language skills that students need to improve are not reading and writing with a silent way, but combines the four skills as an overall of indispensability. Therefore, in many universities, listening course has been stressed as a part of English language learning, while the course in high school is still neglected in China.

In addition to that, several potential problems may appear to affect students' English listening comprehension. In terms of the nature of listening itself, in the broadest sense, it is a process of receiving what the speaker says (receptive orientation); constructing and representing meaning (constructive orientation); integrating meaning with the speaker (collaborative orientation); and creating meaning through involvement, imagination and empathy (transformative orientation) (Tagor, Andromeda & Kammer, 2017). That is to say for the student, preparation for receiving and understanding what will be listened to seems to be the first step in communication. If the student does not have a good understanding of what a foreigner is saying, then he or she may not be able to communicate with them, or misunderstand meanings of what the others say. Subsequently, the student needs to organize and integrate information based on the message they hear, and reply correspondingly.

Compared to written language, as the feature of spoken language expression, some factors make listening process more complicated. First, the speed is quite fast, rarely repeated so that students quickly forget what is heard after listening. Besides, the

structure of spoken language is relatively flexible, and there exists more redundant information, such as I mean; well; you know, etc., which requires students to eliminate these extra information and seize the main idea in a limited time. It also makes students more confused during listening processing. Furthermore, the spoken language is more focused on the process of meaning and interaction, instead of paying attention to the form. It involves a good deal of reduced forms. For example, the room is too hot, and a person points to the air conditioner, says, "air conditioning, please." These reductions pose significant difficulties especially to classroom learners who may have initially been exposed to the full forms of the English language (Brown, 1994). Likewise, listening comprehension is often influenced by stress, rhythm and intonation in the process of continuous pronunciation. They are also influenced by the sentence, not only by statements and questions, but also by some emotional words, like gratitude, praise, satire and insult, etc.

For most Chinese students, in addition to those factors, Yuan (2005) also found in her investigation that students would feel uncomfortable or even shy when speaking English with foreigners or their classmates. They do not like to ask for repetition if they do not understand during the talk, because they are afraid of making mistakes. Besides, sometimes classrooms also affect students' listening comprehension skills. For example, there are at least forty students sit in one large classroom. It may affect students who sit at the back rows to hear the recording clearly. Students who sit near the window may

also be influenced by noise from outside. Thus, it is hard to take into consideration all

conditions in the classroom.

Additionally, not all students are in the same level of English listening proficiency.

It is not easy for lower level students to keep all the information in mind at once. They

may miss the next part when thinking about message they hear because they cannot

follow the speed timely that the recording plays and identify contextual meanings

appropriately in the classroom. Sometimes they may lose self-confidence and

motivation to complete listening tasks. Meanwhile, it is hard for normal and lower level

listeners to catch the target words if the speed of listening materials is very fast (Carroll,

1977). Juan (2013) also pointed out that the main problem faced by the Chinese students

was the lack of prior knowledge in English vocabulary, this inhibit their understanding

in the listening process. The differences in the ascent of the native speakers, the short

span of concentration, and the learning habit of Chinese students were also the factors

that the students faced in EFL listening learning.

Moreover, students' motivation plays a great role in the process of English listening

comprehension skills (Goh, 2000). For example, if listening materials provided within

learners' background knowledge were interesting, it would be easy for them to

comprehend. But if they find the activity and the task very boring even if they are

interested in the listening text, it also spoils their learning motivation. Furthermore,

Ying (2003) also points out that due to time constraints in traditional English class,

students are passively follow tasks that the recording plays. There is no sufficient time provided in class in pre-listening preparation. However, students need time to make a huge amount of effort to activate their prior knowledge to support their listening comprehension. Therefore, students need to be provided some activities or tasks, such as advance organizers, which provide a brief illustration to help learners learn and understand new materials (details will be in Section 2.1.7 in Chapter 2), to evoke their sense of familiarity with topics and content.

Besides, learning English happens to be done more than just from resources that the teacher provides in the classroom nowadays. Hwang and Chen (2013) discover that the use of technological devices in collaborative EFL activities decreases students' stress and facilitates cooperation in learning English. Wu and Chen (2014) show that technology provides students with tasks and activities under multimedia interactions, like listening to each other and enjoying their spoken works. Moreover, computer assisted language learning (CALL) makes it easier for students to engage in a variety of activities, especially those that let students communicate and share what they have learned. It is becoming gradually popular in improvement of students' EFL learning in Chinese contexts in order to develop their learner autonomy, creativity, productivity and teamwork (Ying, 2003).

Therefore, in order to develop listening comprehension skills for EFL students in English in Zhuchang middle school, this study strives to overcome these limitations by an implementation of a web-based autonomous listening program.

1.3 Purposes of the study

Although there has been much research on English listening comprehension teaching in China, little attention has been paid to English listening instruction supported by CALL in relation to high school students' learning autonomously. The purposes of the present quasi-experimental study are as follows:

1) To develop an approach for Chinese high school EFL learners' autonomous English listening comprehension skills based on the personal website support.

2) To compare the achievements of students who follow an autonomous listening comprehension approach and those who are taught to listen in a traditional approach.

3) To investigate the effects, if any of advance organizers on the development of students' listening comprehension skills.

4) To investigate students' opinions on the autonomous listening comprehension approach based on a web-based program in a CALL environment.

It is hoped that the research will offer English foreign language (EFL) teachers and researchers a better understanding of improving autonomous listening comprehension skills under the technology support. Based on this study, it is also hoped that EFL teachers and researchers in this related fields develop a sense of responsibility in their students so that they can help students make contribution to their own learning. The teacher is suggested to adjust teaching methods and to encourage students to become aware of the importance of English listening comprehension on their own. Once

students are exposed to effective learning environment, they may do well in English listening comprehension autonomously, which also strengthen their self-confidence to continue learning English and even their lifelong learning.

1.4 Research questions

In order to satisfy the purposes of the present study, the research questions will be as follows:

1) Are there any significant differences in the development of English listening comprehension skills of Chinese high school students between Experimental Group 1, Experimental Group 2 and the Control Group? If so in what ways?

2) When comparing the performances of Experimental Group 1 and Experimental Group 2, does the use of advance organizers significantly improve the development of listening comprehension skills of Chinese high school students? If so in what ways?

3) What are the Chinese high school students' opinions of the teaching approaches used in Experimental Group 1, Experimental Group 2 and the Control Group?

4) What are the Chinese high school students' opinions of the use of advance organizers for improving their English listening comprehension skills?

1.5 Significance of the study

The significance of this study will fill the gap in current listening comprehension training in high school and to provide a diverse way on the development of autonomous listening comprehension skills based on a CALL support for Chinese high school learners.

And then, the focus of the teaching approach proposed will follow requirements of aspects of students' listening comprehension skills in high school according to the MOE, such as the ability of catching key terminologies in English instruction and responding appropriately, the ability of understanding listening materials in details in specific contexts, and the ability of identifying important information and making their own inferences. All assignments and activities containing these features are set in place automatically as the part of the training program.

Besides, the study attempts to overcome some negative circumstances in the traditional classroom, like learning pace and noise from outside. It provides an opportunity for students to control the button in order to follow their own pace. Also, they do not need to worry about being disturbed by outside.

Furthermore, the study tends to make a contribution to the development of learner autonomy. More possibilities of freedom and ability of making decisions provided for students to manage their own English listening comprehension learning will be identified, and thus students' learning ability of autonomy and responsibility hopefully

will also be improved.

In addition, the study, with its attention to CALL, will be especially beneficial for students to access listening materials easily. In such an information-rich time, these resources are exposed to students through the technology support due to its 'anytime, anywhere' possibilities. It increases students' opportunities for English listening learning and motivates them to learn English in a positive way.

Finally, pedagogically speaking, it is hoped that the findings of the present study may have some implications for development of teaching and learning English listening comprehension as a foreign language.

1.6 Definitions of key terms

The following terms are those most frequently used in this study together with explanatory notes.

1) Listening comprehension skills: In this study, listening comprehension refers to the learners' ability to paying attention to and constructing meaning from something they hear. Learners need to be able to work out and make meaning what the speaker says in a certain contextual environment. More specifically, listeners need to be able to discriminate sound, recognize new words, and identify the syntax of sentences in which they are presented. During the listening process, all listening materials and activities will conform to the general requirements in the curriculum in order to diagnose and to

predict English listening achievement of high school students.

2) Advance organizers: In this study, advance organizers refer to brief information, like spoken, written forms provided for helping learners facilitate learning and understanding efficiently. It presents a big picture which involves the use of appropriately relevant materials introduced to the learner before the lessons and a framework to make a link between new knowledge and the existing knowledge.

3) Autonomous learning approach: In this study, autonomous learning approach mainly refers that learning through outside the classroom, which provides the learners opportunity to learn English listening by themselves. The learners accomplish learning tasks independently and they schedule learning time and speed when they listen. In this case, teachers are no long the determiner but the facilitator to consider the learners' needs and interest when they prepare the lesson.

4) The web-based program: In this study, the web-based program refers to the experiment is employed a personal website to develop high school students' listening comprehension. With support from the Internet, this part will serve to rich source of authentic learning materials containing graphics, hypertext, and audio in order to have students learn at their own pace, and make them feel more comfortable and are willing to take risks.

1.7 Scope of the study (constraints)

In this study the experimental groups and control group are selected from a high school in Guizhou province. The participants are chosen in light of convenience and accessibility. For students' participation, they are not based on a random selection but on the basis of classroom enrollment. Therefore, the ratio of male and female students might be different. This may also represent an aspect of constraint in this study.

Participants are taken from a high school in Guizhou province and are trained how to listen. The third chapter of this study does not include listening teaching process of high school students in other regions. Due to the limitations of these factors, the findings of the present study should be treated cautiously, particularly in EFL study and practice.

1.8 Summary

In this chapter, the researcher has provided a description of the background of the study, which includes a primary blueprint of the research project in order to put it into the Chinese context. The following brief discussions, including the statement of the problem, research purposes and questions of the study, the significance of the study, scope of the study and key terms frequently used have been presented here. In the next chapter, a review of theories and research studies around the instruction of listening comprehension for Chinese high school students will be shown and will attempt to shape the contribution of the theoretical framework for the present study.

CHAPTER 2

LITERATURE REVIEW

This chapter offers a review of the literature related to the present study. This review is in five sections. First, it discusses the notion, features, and issues in previous studies on listening instructions. Moreover, it depicts some aspects of the schema theory and its related research works. Second, it describes the theory of learning. Third, the theory of autonomous learning and related research works are drawn in subsequent section. Fourth, it describes the notion of CALL, its development for foreign language education and deals with implementation of a CALL system for foreign language learning. Finally, the theoretical framework for the study is summarized.

2.1 Listening

2.1.1 Notion of listening

Different scholars have different perspectives about the notion of listening. Gilakjani and Sabouri (2016) summed listening is a sense of hearing, including the aural process of recognition, reception, selection, and comprehension. It is a dynamic process that needs listeners to connect the sound with the form of meaning.

That is to say, with a series of aural phases, listeners do not passively receives what is heard without choice, while they are able to actively choose and organize the information of what they hear into relevant meanings. As Rost (1990) expressed, listening is an active mental process related to the understanding stages. It helps listeners to be aware of the information around them and is one of indispensable parts in making successful communication (also mentioned in the work of Gilakjani & Sabouri, 2016). Borisoff and Purdy (1997) also stated listening consists of processing certain "specific meanings" from the arrival of the information and organizing these "specific meanings" into relevant meaningful units. In other words, listeners need to compile these sounds of what they gain into the understandable meanings.

In addition, according to Anderson and Lynch (1988), they gave a description of what successful listening is. They said that, "the process of its understanding is not something that happens because of what a speaker says: the listener has a crucial part to play in the process, by activating various types of knowledge, and by applying what he knows to what he hears and to try to understand what the speaker means" (p.6). In other words, successful listening is closely concerned with the listener. Information gained by the listener also contains the listener's own process of meaning making. As Rost (1994) explained, successful listening, especially in foreign language learning, needs learners to exact meaningful information from what is heard and utilize it fully. Therefore, in this study, the listener is placed at the center stage. The main issue is not

only listening process itself, but also how the teacher use understanding of listening process to help students to become successful listeners.

Besides, listening as one of language skills has also been discussed by many researchers. For example, Brownell (1996) stated that listening is supposed to be the earliest and the most often used skill in daily communication. Some investigations have shown that learners at any level spend much time on listening (e.g. Baker, Edward, Gaines, Gladney & Holley, 1980; Wolvin & Coakley, 1996; Jafari & Hashim, 2015). These findings revealed that it costs students about 50% of time in listening in their learning period. It includes listening to their teachers, the peers as well as using during conversations. In order to describe what the position of listening in communication was in a direct way, Adler, Rosenfeld, and Proctor (2001) used pie chart to show the portion of listening in communication (see Figure 2.1).
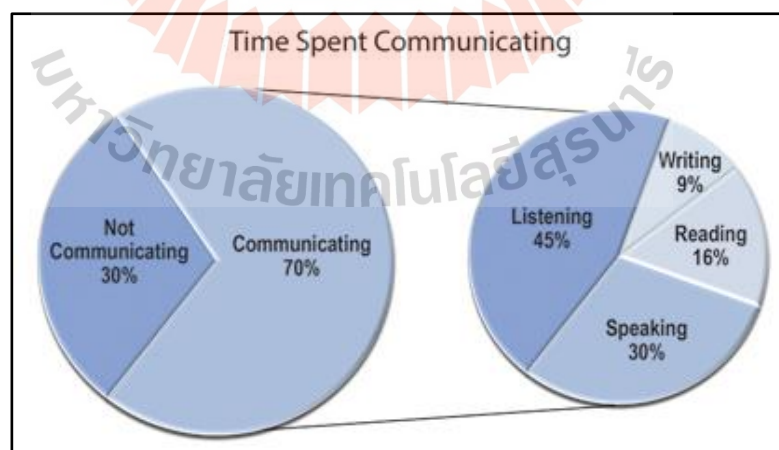
Figure 2.1 Time Spent Communicating

There is no doubt that listening is of great importance for communication in society and it plays an essential role in daily life. Additionally, Borisoff and Purdy (1991)

reviewed numerous articles which also said that listening happens in various professional areas, like the legal major, the service industry, medical major, and business management and so on. This provided lots of evidences that listening is not only significant in daily life, but also plays an indispensable role in several specific professional areas.

In addition, there are also different notions on "listening". Richards (2005) pointed out that listening is considered as a passive activity, and thus its methods of teaching and learning should be stressed as receptive skills. Meanwhile, Lynch (2009) also stated that listening is a "hidden process". In other words, listening may not be easily to grasp the information quickly or it may only shows information of listeners' reception of what they hear, rather than information of what they really understand. For example, even when the listener gives response, like a nod or "uh; well", it does not mean listeners really understand what they hear. On the contrary, some opposite views come up, which mention that listening is not just a passive skill, but an active process of making meanings through the interaction. First, Nunan (1996) described that listening includes an active process of making meaning through both verbal and non-verbal information. It is obviously shown from this view that listening is considered as a complex and active process of meaning construction between what the listener heard and what the speaker says. Second, Purdy (1997) also mentioned listening as the active and dynamic process. It explains the steps of listening input, including receiving,

comprehending, interpreting, and responding to what the speaker meant. It also refers that listening is regarded as an interactional process where listeners can receive information and try to make meaning from what is heard. Thus, it is clear, then, that listening cannot be simply regarded as a "passive' activity, because it mainly depends on whether the listener can actively understand information and make meaning in listening process by themselves.

Furthermore, Mendelsohn (1994) discussed the importance of listening as the process in the real communication. In listening teaching and learning as foreign language, the learner develop their listening ability that not only need to deal with the linguistic forms, like speech speed and fillers, but also to cope with interaction between surface meaning and intended meaning during the listening process. However, they do not need to understand every word of what they hear. Besides, he also stated listeners need to know how to judge and process information in certain particular occasions when they listen. That is to say, listening is to be understood as a comprehensive and integrated activity that needs the listener to understand and analyze the speaker's intended meaning, because it requires the support of various facets of information; types of listening situations need to be taken into consideration. Rost (1990) summed up four types of listening situations according to different listening purposes. These are listed below.

Table 2.1 Four types of listening situations

Types	Purpose
transactional listening	learning and negotiating the meaning of information.
interactional listening	recognizing messages and collaborating with the speaker
critical listening	evaluating some value of messages the speaker provides
recreational listening	integrating the message provided by the speaker

It has been shown that these types of listening situations depend on the listeners and listening contexts. Therefore, in order to explore listening process, these selected facets need to be focused in listening process. For the aim of this study, it attempts to stress the essentials of listening process, the listener and how to use these essentials to help students to become better learners for learning to listen to English.

2.1.2 Features of spoken language

Spoken language is one of the important methods for communication for most people, which is different from written language. Nuan (1991) pointed out two forms of spoken language that are especially significant in teaching listening comprehension. They are: (a) monologues; (b) dialogue. Figure 2.3 shows a summary of types of teaching spoken comprehension.
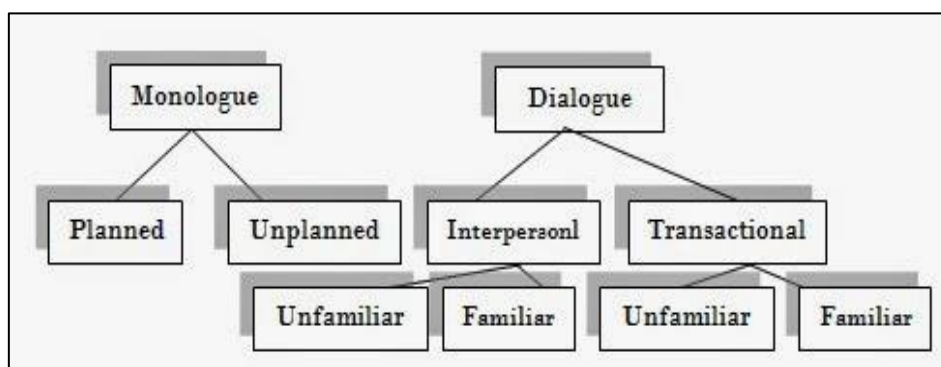
Figure 2.2 Types of oral language (Nuan, 1991)

In the process of monologue, speakers use spoken language to express their opinions or suggestions, such as speeches, announcements, news broadcasts, etc. Listeners usually cannot bother speakers; even they really do not understand what speakers said. Brown (1994) pointed out that there are two types of monologues, planned and unplanned. For a planned monologue, speakers typically prepare materials and plans in advance before the presentation. The sentences they speak out are relatively complete, rarely repeated or redundant, but the content of the materials is relatively difficult to understand for listeners. On opposite of that, for unplanned monologues, speakers speak more casually. The content spoken by speakers is not prepared or practiced in advance. The sentences are usually not complete; sometimes there are repetitions and redundancy. Also, listening materials are easy to understand for listeners.

In the process of dialogue, it refers to the dialogue between two or more people. In other words, this process is more inclined to the interaction between the speaker and the listener. The speaker shares the content and knowledge with the listener during the conversation. Considering unfamiliar people, the references are explicit enough in order for effective comprehension in the conversation, otherwise misunderstandings can easily occur. In all case, these categories mean "a continuum of possibilities instead of irrelevance" (Brown, 1994). For listeners who are not familiar with the topic, the speaker provides more references and explanations about the topic

so that listeners can effectively understand the dialogue and reduce misunderstandings in the conversation. However, in the teaching process, if the teacher wants to share some new knowledge with the students, in order to avoid misunderstanding in the learning process, the teacher should first make a sufficient preparation about the topic for the students. The students can communicate with their teacher well when talking about this topic. This is very important for EFL teachers to consider these effects, because these may directly affect students' understanding of the topic and the content.

According to features of spoken language, Buck (2001) pointed out that three characteristics of speech are very important in listening comprehension:"(a) decoding (b) linear in real time (c) linguistically different from written language"(p. 4). First, the process of listening comprehension needs listeners to put the aural input in context. For example, "bad" and "bed" are quite similar in pronunciation, which sometimes may confuse students to listen well. In this case, the pronunciation may not be a good way to understand what is being heard. When the speaker says, "I want to go to bed." it is easier for students to realize that the speaker does not say, "I want to go to bad." That does not mean that the listener has heard the difference between "bad' and "bed", but they may know the context of the listening process. Second, the real-time process of spoken English is another feature of listening comprehension. That is to say, spoken language occurs in real time. Compared with written texts, spoken texts usually only happens once and then they disappears. In most cases, listeners need to quickly

understand it in a limited time.

As flexible spoken language expression, learners may feel difficult acquiring it in their learning process. To overcome this problem, high-quality listening materials should be provided first to students so that they can listen to the texts as clearly as possible within a limited time. Third, in the process of spoken language, sentences speakers often use sometimes are not too complicated, and they tend to use some structures that are simple and easy to understand. Therefore, as Underwood (1989) said, for students, they should not only pay attention to determine what they hear, but also observe the expression in material, which is also very important for listening comprehension. For teachers, they need to help learners to judge these conditions, analyze the contexts so as to make them become effective listeners.

In conclusion, as parts of spoken language, listening also has the same form and characteristics. Not only do the learners have to master these facets in order to understand efficiently the meaning of what they hear, but also the teachers need to keep them in mind so that they can be borne in mind when selecting the listening materials and activities.

2.1.3 Potential problems in learning to listen to English

For listening, understanding the potential problems of it might be the first step to improve listening instruction effectively. According to Goh (2000; cited in Qiang, 2006), she summed up some specific issues reflected from learners when

listening to an English text. They are: quickly forget what is heard; do not recognize words they know; understand the words but not the intended message; neglect the next part when thinking about meaning; unable to form a mental representation from words heard; do not understand subsequent parts of input because of earlier problems.

Based on the issues summarized by Goh (2000), Qiang (2006) also discussed these through data collected from Chinese English learners. The results indicated that there are three main issues from students' views in listening comprehension: (a) the listening strategies; (b) listening materials and tasks; and (c) their role while listening. Most students thought they have poor listening strategies, like using bottom-up and top-down strategies. At the same time, they mentioned another facet of problem might affect their understanding when they listen in listening process, which are different types of listening materials and listening activities. Additionally, a minority of students mentioned that it could be related to their personalities and backgrounds knowledge.

Another part taken into account is listening materials. Azmi, Celik, Yidliz, and Tugrul Mart (2014) listed some problems students might face in listening comprehension. (1) quality of listening materials. In some EFL classes, teachers use some listening materials that do not have high quality so that it leads students to fail to listen. (2) cultural differences. Different cultural backgrounds contained in listening materials may also have a major impact on students' listening comprehension. For example, if the listening material contains different cultural materials that the student

has never known before, it may cause student to feel confused and stressed during the listening process. As mentioned by Azmi, Celik, Yidliz and Tugrul (2014), in the process of English listening teaching, EFL teachers should provide sufficient background information about the listening materials in advance for students.

(3) Accent. Different listening materials contain different pronunciations. A considerable amount of listening materials, like speeches and lectures, have a lot of accents in spoken texts. Munro and Derwing (1999) stated that too much accented speech might make listeners feel less understandable in the listening process. Qiang (2006) also found in her survey that 66% of Chinese students thought that speakers' accents are also one important aspect in influencing their listening comprehension.

(4) unfamiliar vocabulary. When listening materials contain a lot of unfamiliar words, it is difficult for students to understand the whole listening content. Conversely, when the listening materials contain all known words, the student can easily understand it. In addition, many words contain extra meanings. Some words even have some uncommon meanings. In this case, students need to understand the meaning of the words in an appropriate context; otherwise they may misunderstand the whole sentence.

(5) Length and speed of listening. The length of the listening tasks can affect the student's listening comprehension (Azmi, Celik, Yidliz and Tugrul, 2014). They found that students with lower and intermediate levels of English listening proficiency

were better at listening tasks in less than three minutes. However, once the listening

materials lasted longer than three minutes, students felt pressure to complete the

listening task.

Therefore, short listening materials can make students feel that listening tasks

are easier to complete. In addition, Underwood (1989) mentioned that too fast speed of

listening materials could make listening difficult. Students will find it difficult to keep

up with the pace and understand the content at the same time.

To conclude, those potential problems are listed for students to understand

how difficult it is when they listen. Those are also helpful for teachers when they

prepare listening activities and tasks. Therefore, the EFL teacher should help students

get familiar with knowing these problems well and remind them into listening

assignments appropriately. Meanwhile, the teacher should provide appropriate

strategies to students, so as to overcome these problems in listening comprehension

skills.

2.1.4 Listening theories

This section summarized two main listening theories: Information

Processing Theory and Social Constructivism Theory. As a part of the development of

the computer revolution, Information Processing (IP) has grown in the 1970s and 1980s.

It contains three elements: a process of input, decoding process, and output. The process

of understanding the information, the conclusion is based on experimental observation.

Maley (1983) showed the process of information understanding, as in Figure 2.5.
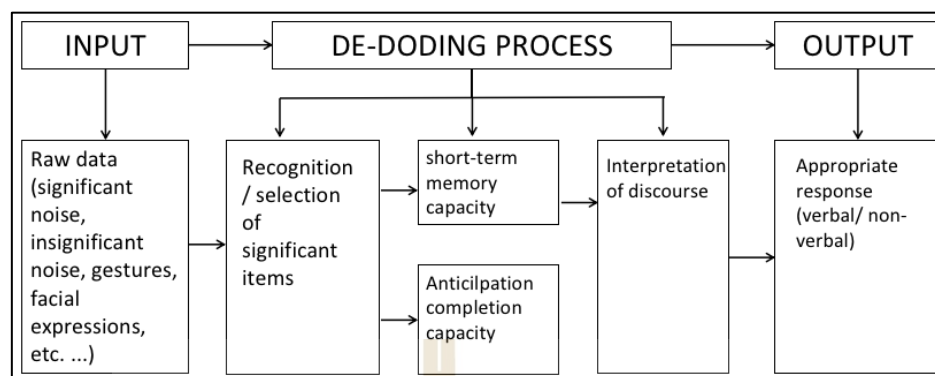
Figure 2.3 An information processing model of comprehension (Maley, 1983)

IP adds more different aspects. The process of understanding information is no longer limited to only verbal information. It also contains non-verbal information. Therefore, in the first part "input", its range of the information is expanded, so that the listener can understand the information more integrated. In the second part of the "decoding" process, it contains identifying, processing and selecting the information of what is heard. In this section, the listener deals with the information timely, and consolidates the message by shifting the information from short-term memory to long-term memory. Finally, in the third part of the "output", the listener deals with the output in an appropriate way by remembering what is being heard. All in all, IP provides an advance view for the listener's listening comprehension.

The two theory is Social Constructivism. It is different from Communication Theory and Information Processing. It emphasizes the interaction between the listener and the real environment. That is to say, the listener should be involved in listening

process. Lynch (2009) pointed out that social constructivism can be regarded that listeners need to participant in the environment. In other words, in the view of social constructivism, learners should become a part of listening process in order to share with others in real communication, not just listening. Also, as Vygotsky (1978) said, the learner cannot regard the learning as the process of a simply comprising accumulation and accommodation of new knowledge; it is the process by which the learner can integrate new knowledge with the society contexts. For example, when dealing with listening tasks, the use of collaborative learning methods as one way of social construction theory requires the listener to develop teamwork skills and combine individual learning with group learning in a specific context in order to complete listening tasks. Generally speaking, collaborative learning under social constructivism theory can be thought as an interactive and constructive learning process among the teacher, students and their peers.

To conclude, this study adapts some principles of the Information Processing (IP) theory because of considering the overall range of listening comprehension tasks provided to students and including the use of a listening website under a CALL environment. It aims at offering a potential platform for students and can help to make them more aware of their own listening learning - this issue will be coming back to in Section 2.5.

2.1.5 Schema theory

2.1.5.1 Definition of schema

The term schema originated from the work of cognitive scientist Charles Bartlett, which mainly talks about human comprehension and artificial intelligence. For the definition of schema theory in listening comprehension, Anderson and Lynch (2009) stated that is "a mental structure consisting of relevant individual knowledge, memory, and experience, which allows us to incorporate what we hear into what we know". That is to say, the schema is used to organize new knowledge with listeners' previous experience. It can be considered as a guider to help listeners understand what the text will be about.

There are two main types of patterns: formal schema and content schema. As for formal schema, it focuses on different types of listening materials, such as grammar structures, sentence relationships or genres. It helps listeners understand information depending on the listeners' prior knowledge of different types of listening materials, like dialogues, monologues, public speeches, etc.

The second is the content schema, which contains content and cultural knowledge. Some experts (e.g.: Hudson, 1982; Johnson, 1982; Lynch, 2009) have explored whether the content schema affects learners' comprehension or not. According to their findings, learners' cultural schema and their past experiences impact their memory and comprehension significantly. They also mentioned that learners have

a strong predictive ability if they are familiar with topic of new knowledge. Therefore, it can be admitted that the familiarity of topic influences learners' comprehension of the overall content of the texts.

2.1.5.2 Previous studies related to schema theory and listening comprehension

Some researchers have explored the role of the schema in listening comprehension in order to understand the interactions between learners and their schema. Ableeva (2020) investigated the effects of dynamic assessment (DA) on improving listening comprehension of intermediate university students learning and compared the results to a traditional test of listening comprehension. DA in his study refers to the instructional process where learners need improvement and follow appropriate intervention in order to overcome problems learners faced. The results of the study indicate that, through interactions in the ZPD, DA helped learners establish not only the actual level of learners' listening ability but also could diagnose/assess the potential level of their listening development, while at the same time promoting learners' development of listening comprehension.

Haiyan (2018) explored whether the teaching methods of using the schema theory for listening comprehension was effective or not. She conducted an experiment of English listening teaching based on the schema theory to examine whether the "three-stage listening model" (pre-, while- and post-listening process) (see

details on page 83) helps to improve students' English listening comprehension skills.

Sixty freshmen from two classes were trained as 6-week listening courses. The

experimental group adopted the "three-stage listening model", including learning of

background information, words, phrases and sentence structures, listening and

performing, and listening for making inference, and so on. The control group was used

a traditional method including re-listening process. The results showed that the "three-

stage listening model" based on the schema theory could improve students' English

listening comprehension more effectively.

Xiaoli (2016) investigated the listening teaching mode for English

majors according to the schema theory. She designed three stages of listening tasks,

including pre-listening, while- listening and post-listening. Compared with the control

group using the traditional methods, the experimental group used the tasks organized

by the learning process based on the teaching mode of the schema theory. The results

showed that listening teaching with background knowledge could effectively improve

students' listening comprehension ability, especially for English majors in universities.

Mai, Luu & Thao (2014) investigated the effect of schema

construction activities on EFL learners' listening performance. 101 first-year non-

English major students as the participants were chosen into two class as control group

and experimental group respectively during 15 weeks. Students in control group

practiced listening traditional methods, including new vocabulary learning, answering

questions and getting feedback from the teacher, etc. On the contrary, students in the experimental group were required to work individually, in pairs, or in groups with schema construction activities. The activities included building a list of words and structures, and discussing the topic of new listening materials, etc. The results showed that there was a difference in listening posttest mean scores between the control group and experimental group. Also, schema construction activities can improve EFL learners' listening achievements more helpfully.

To conclude, many researchers have done much on the effects of the schema theory on promoting English listening skills, but there are some gap in the previous research, particularly in Chinese contexts, few researchers have applied schema theory to students' EFL learning, even in learning English listening comprehension. Thus, the present study tends to explore whether motivating schema has any effect on listening comprehension of high school EFL learners through the way of an autonomous learning.

2.1.6 Types of listening

Some people think that listening is something that just happens naturally. In fact, Baker, (1971) said that listening is one of the most important and difficult skills in communicating with others. It not only helps students understand what they hear more confidently, but also communicates with others easily. Therefore, Tyagi (2013) summarized some of types of listening, as shown in Table 2.2.

Table 2.2 Types of listening

	Types	Purpose
1.	Active listening	interest and motivation
2	Discriminative listening	something special but nothing else (e.g. a baby is crying.)
3	Informational listening	gaining knowledge
4	Evaluative listening	evaluating and criticizing
5	Appreciative listening	something for pleasure, like to music
6	Comprehension listening	understanding, and seeking meanings for what is being heard
7	Critical listening	analyzing opinions and making a judgment
8	Deep listening	seeking to understand the person
9	Reflective listening	reflect back to the other person what they have said
10	Selective listening	listening for particular things and ignoring others

In order to make students better complete their listening tasks and activities, for English listening instruction should enable students to know types of listening according to their current proficiency in order to understand listening contents and communicate with others. More specifically, different types of listening include different listening tasks. Students are required to be able to focus on a particular aspect when they complete a listening assignment. At the same time, they need to understand the features of different types of listening because they may be the basis for helping students develop their listening strategies.

2.1.7 Listening Strategies

After summarizing types of listening, the natural progression will be to understand listening strategies. It is widely divided into three main categories, which include cognitive strategy, metacognitive strategy and socio-affective strategy. Lynch (2009) gave a brief illustration of each item. He summarized that cognitive strategy is

considered as "making sense of what the student hears"; metacognitive strategy is regarded as the strategy used to "plan, monitor, and evaluate" what the student understands after listening; and socio-affective strategy is understood to the efforts to "understand and interpret what the speaker says" (p.80). A detailed illustration of strategies based on the three main categories is shown in Table 2.3.

Table 2.3 Listening Strategies (Lynch, 2009)

Cognitive	Metacognitive	Socio-affective
Predicting/ inferencing	**Planning**	**Questioning**
・ Form the text	・ Self-management	・ Asking for repetition
・ Form the voice		・ Using comprehension
・ Advance organizers		check
Elaboration	**Comprehension monitoring**	**Cooperation**
・ From personal experience	・ Confirming Comprehension	・ Working with other
・ From world knowledge	・ Identifying words not	learners
	understood	
Contextualization	**Directed attention**	**Anxiety reduction**
Imagery	・ Concentrating	・ Encouraging yourself
	・ Persevering despite problems	・ Comparing and
		discussing with others
		・ Focusing on success
Summarization	**Selective attention**	**Relaxation**
・ Mental	・ Listening for familiar words	・ Using physical
・ Physical (notes)	・ Listening for the overall	techniques
	message	
	・ Noticing the information	
	structure	
	・ Noticing repetition and	
	reformulation	
	・ Listening to specific parts	

Table 2.3 Listening Strategies (Lynch, 2009) (Cont.)

Cognitive	Metacognitive	Socio-affective
Translation	**Evaluation**	
Repetition	ᐧ Checking interpretation against predictions	
	ᐧ Checking interpretation against context	
Transfer from other language		
(s) Deduction Fixation		
ᐧ Stopping to think about spelling		

This study adapts some parts in these three main strategies, which are advance organizers (cognitive teaching strategy), comprehension monitoring and selective attention (metacognitive teaching strategy), and cooperation (socio-affective teaching strategy) to integrate the teaching process for listening comprehension. For example, three important listening stages in IP theory are "input", "de-coding process" and "output". In the "Input" stage, the current study is conducted to follow the schema theory with pre-listening phase of cognitive teaching strategy– "advance organizers" to manage the listening activity as the pre-listening part in order to make students be familiar with the topics and the contents, perceive and deal with them in advance. The teacher provides a way by the schema to help them organize listening materials when new information appears while students are required to attract new information of what is heard into the structure which they can utilize their prior knowledge to understand listening materials. Therefore, it not only emphases the importance of relationship

between prior knowledge and new knowledge, but also reinforces the use of means such as advance organizers "bridge new knowledge to older knowledge stored in schema (Merriam, Caffarella & Baumgartner, 2007, p.27)".

For advance organizers, it is a cognitive teaching strategy and is understood as a bridge to promote and maintain new knowledge. The teacher uses it to help learners make a connection between what they know and what is to be learnt (Novak, 1980). More specifically, advance organizers are materials presented before learning, and learners can use it to organize and interpret new incoming information (Mayer, 2003).

The purposes are to make a preparation about the relevant prior knowledge for students and enable them to be ready to learn new knowledge. According to Ausubel (1960), advance organizers are regarded as a relatively short design of materials introduced to students before the lesson. He also claimed that advance organizers might promote students' meaningful learning regarding pre-existing knowledge that is already in the their cognitive structure, so that they can naturally accept new knowledge to finish the learning tasks. Ni, Rohad and Alfana (2016) pointed out, "an advance organizer is not an overview, but rather a presentation of information (either verbal or visual) that are "umbrellas" for the new material to be learned (p.54)". Thus, this study uses advance organizers to support students in learning new knowledge of listening materials and significantly connecting those to their existing previous knowledge.

In the "de-coding process" stage, strategies of comprehension monitoring

and selective attention in metacognitive teaching strategy are adapted in the second stage in order to develop learners' ability for completing while-listening activity without figuring out very detailed information and understanding each word and phrase in every text. In this stage, strategies of comprehension monitoring and selective attention are adapted in the second stage in order to develop learners' ability for completing while-listening activity without figuring out very detailed information and understanding each word and phrase in every text. This section is also taken top-down and bottom-up strategies into consideration. The bottom-up and top-down strategies are the most common strategies in the process of written and spoken input. In bottom up processing, it is the strategy to build up new knowledge from small steps (Scrivener, 2011).

More specifically, it is considered that listening comprehension begins with the sound and the meaning recognitions within important clues, such as vocabulary and phrases. Students are required to start by listening from the simple vocabulary, and then make these into phrases, clauses and sentences together. Finally, texts and conversations are formed by these sentences. Govorun (2015) also investigated that when students are required to take one strategy for listening, particularly in EFL learning. Students who are at lower levels of EFL proficiency prefer the bottom-up strategy to do their English listening training. In top-down processing, it emphases that meanings of understanding are constructed from listening for main idea and key points with the support of the contextual texts and background knowledge (Qiang, 2005). Students need some

background knowledge in their mind when they listen.

Therefore, using top-down strategy attempts to utilize what students already learned to help them to predict content of topic, and then to be familiar with new knowledge as much as possible.

In the part of "output", cooperation in socio-affective strategy is used as the last stage to focus on achieving improvement of students' ability in their learner autonomy and comprehension by sharing and discussing their learning results and thoughts with other learners. More specifically, as described in the work of Lynch (2009), the collaboration and the discussion in this section are conducted to check students' knowledge on the degree of understanding of the texts, so as to provide students greater opportunity to integrate the listening materials to their own particular learning.

To sum up, according to Anderson (2005), it is accepted that "understanding and controlling these cognitive and metacognitive processes may be one of the most essential strategies that the teachers can develop in themselves and the students with whom they work" (Anderson, 2005, p.19). Therefore, it is imperative for teachers and students to consider how to learn to listen to English through these listening strategies.

2.1.8 Previous studies related to listening strategies

China has attached great importance to English courses at all levels of education and has considered English as a basic skill for people to participate in

international communication (Li, 2005). In recent years, as a basic part of language skills, English listening plays a very important role in many language educational programs in China.

Hui and Ping (2017) proposed an empirical study of listening strategies selected by Chinese vocational college students. They found that students at intermediate levels in vocational colleges were not satisfied with the use of English listening strategies. Besides, the findings showed that students are willing to use both cognitive strategies with the way of note taking, translation and keyword method and metacognitive strategies including planning and self-monitoring, because it can decrease their anxiety and cultivate their interest when they listen. According to the analysis of the result in their research, the relationships between listening strategies and listening proficiency were significant. Therefore, it was significant and imperative to foster students' awareness in developing their proficiency through listening strategies and prepare them appropriate tasks and activities.

Ying (2012) explored the effect of second language immersion to primary school students and their teachers. She focused on three aspects including students' academic courses, some cognitive predictors of English listening achievement and teachers within Chinese and English bilingual education. The findings of this research indicated that second language immersion is an effective strategy to help primary school students' English listening achievement. The research demonstrated that

students who are non-native speakers can perform listening and reading well within second language immersion, but in the skills of speaking and writing, their performance is behind those of the native speakers. It can be understood that immersion strategy can support both listening and reading activities through focusing on spoken and written texts and is beneficial for improving students' English language learning in the long run.

Xiu (2015) explored the relationship between some theories in discourse analysis and listening comprehension. Some of these theories include cohesion, coherence, schema, and relevance, etc. on improving students' listening comprehension. The results showed that in discourse analysis, theories of cohesion and coherence have little effect on students' listening comprehension. However, the results indicated that schema theory has a positive effect on students' listening comprehension. That is to say, there is a strong relationship between the background knowledge of students and target language learning. Overall, the evidence provided by Xiu (2015) revealed that some of the theories in discourse analysis are critical to a student's successful listening comprehension because it provides a specific way to construct listening contents and contexts to some extent. Students need to rely on specific information, such as background knowledge, context, etc., to prepare them for their listening comprehension.

Li (2012) conducted interviews for the perspective of Chinese EFL teachers about effective methods to solve students' listening difficulties. In the interviews, teachers were asked to list main factors that they thought would affect the students'

listening comprehension skills, and to provide some methods that they thought were effective to help their students with low English listening proficiency. It was found that most teachers believed that listening materials and activities are important factors influencing the improvement of students' listening comprehension. In addition, English listening teaching methods (such as vocabulary instruction before starting to the class, topic preparation and repeated listening) were often used. They believed that these are direct and effective ways to promote learners to understand listening materials. Finally, the study concluded that the bottom-up strategy might be the first step to help EFL students improve their English listening.

The teaching of English listening strategies is highly valued in English education not only in China, but also in other countries that regard English as a foreign language. Carrier (2003) investigated whether the improvement of English listening comprehension strategies of high school students was helpful for their English proficiency. Students were required to attend more than 15 listening strategy-training sessions. His research showed that students have made significant progress in discrete, video listening as well as note-taking ability to take notes after mastering explicit listening strategies. In addition, the results also showed that effective listening strategies can help students improve their academic listening comprehension skills, and make their overall English proficiency improved.

Hamouda (2013) explored the listening problems encountered by first-year

college English majors through questionnaires and interviews. The questionnaires revealed that these problems in listening comprehension included the speaker's accent, pronunciation, and the speed of speech, vocabulary and the quality of recording. Students believed that improving listening comprehension was difficult, although they knew the importance of listening comprehension. Students also pointed out that they did not have sufficient time to practice listening and got enough listening strategy training. After concluding the difficulties encountered by students with listening comprehension, Hamouda (2013) briefly listed some elements the teacher and students need to pay attention to during learning listening strategies. They are: listening materials, recordings, vocabulary, learning environments, etc., so as to provide clues for them in English teaching and learning.

Renukadevi (2014) discussed the importance of listening comprehension in foreign language teaching. He mentioned that listening is one of the foundations of language ability and contributes to communication with others. Without effective listening strategies, it was difficult to achieve successful communication. In addition, he pointed out two aspects of the current challenges in the teaching of EFL listening: the students' psychological factors and the impact of the environment on students' listening. The results indicated that students should make an appropriate plan based on their own English listening proficiency. Besides, in order to reduce the negative impact of the environment on students' listening, teachers should provide a relatively

comfortable and less competitive environment. At the same time, students can share their experiences and opinions about new listening knowledge with their peers. This may facilitate their motivation and interest, and even develop their self-confidence in EFL learning.

Based on the above comments, teachers and students may encounter different potential problems in listening teaching and learning. Therefore, for listening comprehension, cultivating the awareness of learning listening comprehension, stimulating the interest in listening learning, and understanding basic language learning theories may help them avoid potential problems in learning to listen to English.

2.1.9 Definition of listening comprehension

In recent years, the term "listening comprehension" has been defined by various researchers. Mendelsohn (1994) defined that listening comprehension is "the ability to understand the spoken language of native speakers (p.32)". He summarized several aspects, including being familiar with speech sounds, knowing the meaning of the vocabulary, and interpreting the sentence structures (Gilakjani & Sabouri, 2016). They also proposed that listening comprehension is an active and conscious process. Listeners need to make meaning by using certain clues from contextual information and their prior knowledge when they listen so as to complete listening tasks successfully.

Thus, it is obvious that listening comprehension is more than just hearing what the speaker said. Hamouda (2013) regarded listening comprehension as the

understanding and analyzing process between what the speaker says and what the listener hears, and he also stressed the learner have the capacity to repeat what is heard sometimes even they do not understand the listening materials totally. That is to say, listening comprehension sometimes relies on listeners to construct meaning when they listen. According to Kim and Pilcher (2016), they reviewed a lot of empirical evidence of listening comprehension development. It has been shown that listening comprehension is closely connected with cognitive skills, such as working memory, attention, vocabulary, and syntax, and so on. In other words, those skills can be developed through listening training in daily practice. Another conclusion in their research is that listening comprehension is influenced by any of a variety of factors inside learners' head, like their emotions, motivation and background knowledge, and so on. Learners need to pay attention to these factors when they are ready to listen.

Furthermore, Poelmans (2003) said that listening comprehension is regarded as the understanding of integrated meanings of the listening materials. In his research, he distinguished listening skills into two parts, including the "modality" and the "processing activity", comparing with other three basic skills: reading, writing, and speaking. It is indicated in the Figure 2.2.

		Processing activity	
		encoding	**decoding**
Modality	**auditory**	speaking	listening
	visual	writing	reading

Figure 2.4 The four language skills

In terms of the two parts, a general summary about listening comprehension (listening skills) in his article is considered as a process of continuous listening input, which combines the auditory input from the speaker with the meaning making from the listener.

Graham (2006) in his research investigated opinions of English students aged 16-18 years concerning listening comprehension in French. It was shown that in the article most students believed that listening comprehension skills is a skill that they feel difficult to improve. The problems included their weak listening strategies, lack of interest on listening, and difficulty of listening tasks and material assignments. Also, Kurita (2012) also said that learners thought that listening comprehension skills are hard to be acquired. Therefore, teachers need to change their listening methods into more effective ones, because it not only help learners to increase their motivation of learning a target language, but also cultivate their confidence of language learning.

Additionally, Berne (1998) reviewed many literatures related to L2 listening comprehension and noted some principles about L2 listening comprehension. They are explained in Table 2.3.

Table 2.4 The principles of L2 listening comprehension

1	Familiarity with passage content facilitates L2 listening comprehension.
2	Lower-proficiency L2 listeners attend to phonological or semantic cues, whereas higher-proficiency L2 listeners attend to semantic cues.
3	The effectiveness of different types of speech modifications or visual aids varies according to the degree of L2 listening proficiency.
4	Repetition of passages should be encouraged, as it appears to facilitate L2 listening comprehension more than other types of modifications.
5	The use of pre-listening activities, particularly those that provide short synopses of the listening passage or allow listeners to preview the comprehension questions, facilitate L2 listening comprehension.
6	The use of videotape, as opposed to audiotape, as a means of presenting listening passages facilitates L2 listening comprehension, especially with regard to attitudinal and attention factors.
7	The use of authentic, as opposed to pedagogical, listening passages leads to greater improvement in L2 listening comprehension performance.
8	Training in the use of listening strategies facilitates L2 listening comprehension and L2 learners can and should be taught how to use listening strategies.
9	Due to the complex nature of listening comprehension, L2 listening practice should encompass a wide range of situations where listening is required as well as different types of listening, different types of listening passages, different modes of presentation (e.g., live, videotape, audiotape), and different types of activities or tasks.

(pp. 169-170)

These principles are used to explain how to understand listening comprehension skills in a particular way. Ferris (1998) also admitted that the principle of listening comprehension is considered as very significant and plays an essential role in EFL instructions. Therefore, the issue in the current study concerning listening comprehension skills will be partially conducted by those overall of these principles, in particular with a focus on the design of listening activities and materials.

2.2 Theory of learning

2.2.1 Notion of learning

Today, learning has received more and more attention. Educators from all around the world have called for "harnessing knowledge about learning and applying it more systematically to education" (Dumont, Istance and Benavides, 2013, p. 11). The sense of this development may affect students' learning purposes and learning modes. In this case, the educator may first figure out what learning is and how it happens. With regard to the definition of learning, different educators have different definitions of the concept of learning. However, there is a general understanding: learning is related to knowledge, it is considered to be the basis for the future development and essential resources for learners (Dumont, Istance and Benavides, 2013).

According to Wilson & Keil (2001), learning can be understood as the behavior of human experience. In their research, they believed that learning was made up of many aspects, such as the personal life experience, the learner's personality and the degree of acquisition of new knowledge. For the purposes of learning, Boisseau, Vogel and Dussutour (2016) also considered that it is a process of acquiring a specific ability through the learner's own social experience. Through this process, it internalized new knowledge into learners' abilities.

In short, learning can be understood as the process of positively linking new knowledge and learners' personal experiences. In this process, students need to know

how to critically use the knowledge they have acquired to get new one. Suzanne (2006) summed up the relationship between learning, knowledge and teaching, so that teachers can effectively assign learning tasks or share learning experiences with students. The summary is shown in Table 2.4.

Table 2.5 Benchmarks for Learning and Teaching (Suzanne, 2006)

Benchmarks	Moving from…	Moving toward…
Learning	Passive absorption of information	Active engagement with information
	Individual activity	Both individual and collective work
	Individual differences among students seen as problems	Individual differences among students seen as resources
Knowledge	What: facts and procedures of a discipline	What, how, and why: central ideas, facts, processes of inquiry, and argument
Teaching	Simple, straightforward work	Complex, intellectual work
	Teachers in information-deliverer role	Varied teacher roles, architect of educative experiences
	Teachers do most of the work	Teachers structure classrooms for individual and shared work
	Lessons contain low-level content, concepts mentioned; lessons not coherently organized	Lessons focus on high-level and basic content, concepts developed and elaborated; lessons coherently organized
	Teachers as founts of knowledge	Teachers know a lot, are inclined to improve their practice continually

And in addition to that, according to Lian (1997), he believed that language learning needs to consider the differences between people and their needs. In other words, learning is an active participatory process. It requires students to think critically

and connect with their needs and purposes. Therefore, there are three main learning theories that support the notion of learning.

2.2.2 Major learning theories

As for learning, different teachers have different learning theories taken into their consideration in their teaching process. Here this study will review three basic theories: behavioral learning theory, cognitive learning theory, and constructivism. Suzanne (2006) pointed out that in recent years, there have been some major changes in education.

The first is behavioral learning theory. Learning has changed from a concept of "leather as a sponge" to a "learner as active constructor of meaning" (Suzanne, 2006, p.7). This type of thought is based on a learning theory that focuses on learner's behavior. Behavioral learning theorists believed that learning is a mechanical process that combines learners' stimulation with their response. Stimulus here refers to any teaching condition that can directly affect learners' behavior and their responds.

The second is cognitive learning theory. Lesh and Lamon (1992) mentioned that based on the learning theory, the importance of "cognitive psychology" with the real-life experience will gradually replace the place of "behavioral psychology" with the factual rules. Cognitive theorists suggested that learners should actively understand the world, interact with new knowledge, and express their thoughts about learning through their own experience. Even if the teacher is at the center stage, students can

still think and criticize what they learned. If possible, students need to follow a reasonable process of learning knowledge and to pay attention to the content of what they will learn. The cognitive theory focuses on asking students to think according to their own understanding rather than simply repeat what they have learned.

The third one is constructivism. The one of important aspects on which constructivism focuses on is stimulating learners' innovation and motivation with the help of teachers and people who have high-level proficiency. It encourages learners to connect their previous background knowledge and build their own independent learning awareness. Besides, constructivists emphasize the importance of autonomy and believe that it has a great impact on learners concerning constructivism. Under the constructivism, learners are provided with meaningful learning activities and are required to think independently and critically. In addition, Dagar and Yadav (2016) pointed out that under constructivism, the learner is at centered, directed and collaborative status to express their views until new knowledge is constructed. Thus, learners have enough opportunities to build an understanding of new knowledge under their existing knowledge. The teacher is no longer the sole distributor of knowledge, but instead of acting as a guider and motivator to provide the learner with the support of authentic tasks.

Furthermore, Vygosky (1978) mentioned that there is no isolated knowledge without social and cultural contexts. Based on this theory, He focused on the interaction

between the target language and the social context. He proposed the concept of "The zone of proximal development" (ZPD) and "Scaffolding", so as to support learners' language learning achievements through the interaction between teachers and learners, and learners and their peers. That is to say, with the help of teachers or peers, students can improve their own level of proficiency and extend their learning skills.

In conclusion, in Chinese contexts, the current education system emphasizes that knowledge is prepared for students' exams, rather than promoting their further learning. Compared to traditional teaching methods, constructivist tends to prepare students with unique and distinct learning methods and materials (like autonomous learning approach, thought-expression freely, and integrated materials with social and cultural contexts, etc.). These aspects will enable students to benefit from the learning process. Therefore, this study will consider how to enable students to independently exert their innovation and motivation to improve their listening comprehension skills.

2.3 Learner autonomy

There are many explanations for the notion of autonomous learning or learner autonomy. The most often used and cited definition of learner autonomy is in the work of Holec (1981), which describes as "the ability to take charge of one's own learning and to take charge of one's own learning is to have, and to hold, the responsibility for all the decisions concerning all aspects of this learning" (p. 17). More detailed explanation

includes: determining the objectives; defining the contents and progressions; selecting methods and techniques to be used; monitoring the procedure of acquisition properly speaking; evaluating what has been acquired (Holec, 1981; p. 17).

In the view of Holeck (1981), he paid attention to the personality of learners and believed that autonomous learners can make appropriate decisions for themselves based on their own learning plan. However, in his work, he did not mention how learners deal with their learning activities autonomously and whether learners need help from the others or not during the learning process. Dryden (2010) described learner autonomy as the ability of self-management. According to Benson and Voller (1997), they proposed five aspects of learner autonomy: the condition in which learners study independently; the skill that can be learned and used in self-managed learning; the ability which needs support the teacher; the process of learners' responsibility for their own learning; the right of learners to determine the content of their own learning (Benson and Voller, 1997; p. 31).

As far as the view is concerned above, learner autonomy includes learners' cognitive process and the content of learning. Similarly, learners need to control their learning progress to a certain extent, rather than being forced to learn under the pressure from the teacher (Wenden, 2002; Nguyen, 2014; Schmidt, et al., 2018). In this case, learners' role will change from passive to active based on their performance. However, this does not mean that the teacher has no responsibility in this process, but they will be transformed into the promoter of learner autonomy, the resource provider and the

learning guider (Lian, 2014).

At the same time, learner autonomy is to provide students with an opportunity of understanding their learning proficiency, learning plan and learning needs clearly. Sinclair (1999) described the notion of the learner autonomy as "self-directness" in her survey. She mentioned that in the process of EFL learning, the process of autonomy is a process of providing learners with great opportunities for independent practice. In other words, learners can begin to control their own learning progress and develop their abilities through a series of exercises, such as critical thinking, decision making, and self-regulating achievements.

In addition, Little (1991) also believed that learner autonomy comes from the interrelationship between learners and others. It is a capacity based on learners' previous experience, so as to transfer into their own independent learning behaviors. He added that learners also have the ability to complete learning tasks and respond appropriately and independently through some trainings or other people's guidance, such as teachers or peers. Therefore, McCarthy (1998) said that learner autonomy is a kind of learning ability, and like any other learning ability, it will be enhanced with continuous practice, or lost due to lack of practice.

Besides, although the term learner autonomy has been discussed for many years, there are some misunderstandings on it. Little (1991) listed there are four misconceptions of learner autonomy: (1) it is not synonymous with self-instruction that

it is essentially a matter of deciding to learn without a teacher; (2) it is not a teaching method; (3) it is not a single easily described behavior; (4) it is not a steady state achieved by certain learners (Little, 1991; p. 11).

Conversely, the process of learner autonomy requires a guider, but this does not mean that all learning processes are controlled by the guider. Therefore, It is clear that when the teacher attempts to use the learner autonomy to guide the students' learning, it is necessary to take into account the misunderstanding of the learner autonomy, which helps the teacher to conduct teaching process more comprehensively.

Through the above understanding of the learner autonomy, it can be considered as not only the process of students' responsibility for their own learning, but also the ability of making decisions on their own learning. In addition, some researchers classified the characteristics of autonomous learners. For example, Dickinson (1993) concluded that: (1) they are able to identify what has been taught; (2) they are able to formulate their own learning objectives; (3) they are people who can and do select and implement appropriate learning strategies; (4) they are able to identify strategies that are not working for them; (5) they are able to monitor their own learning (Dickinson, 1993; p. 20).

Further, Scharle & Szabo (2000) mentioned that autonomous learners could accept negative opinions of others about their learning. They will use these suggestions to make progress through their efforts. In addition, Barfield and Nix (2003) pointed out that learner autonomy in language education is still new, and it has various aspects to

explore. EFL educators can use a variety of learning methods to develop it as much as possible, like working with technology. Obviously, the use of technology can achieve the goal of learner autonomy. Therefore, in the following literature reviews, more technological researches supporting autonomous learning will be given an attention.

2.4 Computer Assisted Language Learning (CALL)

2.4.1 What is CALL?

Different researchers have different definitions of computer assisted language learning (CALL). One of the most common definitions is that CALL relies on computer technology to "present, enhance and evaluate" specific language learning (Jones, 1987). In other words, it combines the computer with language learning process. As described by Moras (2001), CALL has become popular since the 1960s and 1970s. It was used to deal with texts and sentences through CD-ROM. It also can process some elements of graphics, animation, audio and video, etc. These resources provide learners with a wealth of practical opportunities.

The computer can be understood as a facilitator to guide students with a variety of real-life resources. Moras (2001) also said that the use of computers not only promotes the development of student learning strategies, but also offers similar to the real-world contexts to help students participate in the learning of the target language culture. In this way, students can use computers outside the classroom to meet their

needs for language learning instructions.

Furthermore, Butler and Wiburg (2003) mentioned that the development of computer technology has made language teaching more vivid. For example, CALL can process data very quickly and integrate voice, music, video, pictures and text into lessons. In addition, with computer technology, students are free to arrange their learning time and schedule, so that they can feel comfortable during their studies. Also, computer technology may help them be exposed to the environment of practicing their speaking, listening, reading and writing skills in general. Nowadays, There is a common situation where students are more likely to be exposed to and familiar with technology in their daily life. Therefore, for the use of computer technology in EFL learning, this may be another effective way of learning for students.

Edgar (2017) mentioned that computer technology was considered as a modern approach of language teaching, because it can be used as a "tool" for language practice to enhance and evaluate student using these learning materials. In addition, with the emergence of the WWW (World Wide Web) or the Internet, CALL has expanded its scope over the years. Edgar (2017) also pointed out that, its use makes students communicate, interact and share what they have learned with their teachers and the peers conveniently.

Therefore, with the help of computer technology, the teacher combines audio and video tasks or activities in and outside the classroom. Besides, Brown (2001) noted

that CALL also greatly supports them to carry out autonomous learning, because it emphasizes more student-centered rather than teacher-centered in independent learning process. According to these definitions mentioned above, CALL has a wide range of forms, which is hard to define in one way. As for this current study, CALL will be used to benefit high school students in listening comprehension skills, including material, technology, activities, tasks, etc.

2.4.2 History of CALL in language learning

In recent years, CALL has become more and more popular in language teaching. Some studies attempt to make association between learning theories and CALL. The first one is associated with Behaviorist CALL. It is widely used in the audio-lingual in the 1960s and 1970s. These include a series of exercises and drills for students. In terms of this stage, the computer plays an important role as an instructor to drill exercises without feedback immediately and it does not include interactive activities. For example, students use computers to practice their listening. Some programs in the computer can help students to strengthen listening exercises very conveniently.

The second is related to Communication CALL. Moras (2001) mentioned that at this stage, computers can provide more skill exercises and be used to give students more options for control and interaction. The last one is connected to the integrated CALL. It is based on the approach with the multimedia and the Internet that link text, graphics, audio and video, etc. Also, some useful resources are accessed from the computer, CD-ROMs and the Internet and so on.

Besides, in CALL stage, the roles of teachers and students have also changed greatly in the teaching and learning of foreign languages. For example, students can be responsible for their own independent learning on a web-based platform. The teacher becomes the supporter and the facilitator of students' learning, rather than the controller and the dominator. They provide students with timely guidance and help, while also helping students to consider the potential problems they may encounter in order to make them become a better learner. Therefore, as Warschauer & Healey (1998) said that, just like the status of multimedia and the Internet, the value of CALL in improving students' language learning and interaction cannot be ignored. They also pointed out that the type and the task of learning materials provided for students in CALL system also have a great impact on the quality and efficiency of students' EFL learning. With the continuous development of technology in the fields of communication and multimedia, these methods have provided more abundant support for EFL teaching and learning.

Edgar (2017) attempted to improve existing Comarts syllabus using CALL system. These materials are delivered through the use of a listening website. He selected 35 college students as a target sample for Comarts study in order to contribute ESL teaching. The experiment aimed to improve students' interactive and communicative English grammar learning skills. The results of his research indicated that students consider CALL system to be more interactive and communicative, which also reflected the high general satisfaction of the Comarts syllabus after modifying through CALL program.

Another study was conducted by Miftachudin (2012) to explore the impact of CALL project on teachers' training in Indonesia. It included some obstacles during the process, such as the cost of training, the length of teachers' training, and the quality

of training. These were the main problems that make the CALL project smooth. In this case, some suggestions were proposed to solve these problems, such as advising schools to cooperate with local government, customizing appropriate learning techniques and discussing teaching issues with peer schools.

Moreover, Mahboubeh (2015) reviewed introduction of some features of CALL approaches and the related studies that have been carried out in EFL teaching and learning. He also explored the advantages and disadvantages of CALL system to test whether it can penetrate all language skills or not. As far as CALL was concerned, students no longer need to spend too much time studying. It was considered to be more beneficial and strategic than traditional methods in modern education. The results of the study concluded that the application of CALL system in and out of the classroom could greatly alleviate difficulties of EFL learning for students and significantly improve pedagogical methods.

Furthermore, Rahnavard and Heidar (2017) investigated the effect of CALL/Web-based instruction on improving EFL learners' pronunciation ability. 85 students selected as participants in the experiment. A pre-test of pronunciation was administrated with two groups, and then experimental students were exposed to the treatments for 12 sessions. The CALL/Web-based instruction was used in the experimental group while conventional methods were employed in the control group. Based on the statistical analysis, they found that there was a significant difference between the performance of the control and the experimental groups. The findings showed that the web-based learning was effective in cultivating students' motivation in improving pronunciation. It might also have implications for foreign language learners, teachers, and materials developers and so on.

Jones and Fortescue (1988) also stated that Computer Assisted Language Learning (CALL) has already begun a revolution in language pedagogy. Web-based instructions as a part of CALL system may provide useful "tool" in education (Gale, 1991), and it has also attracted the attention of researchers (e.g. Lin & Hsu, 2001; Liou & Yang, 2002; Sun, 2003). For example, Greany (2002) examined students' opinions of using multimedia for language instruction. The findings also showed that most students agreed that web-based instructions motivated them in the multimedia environment. It indicated that the interaction between students and the technology might build students' confidence and an ability of being responsible for their own learning greatly. In terms of the present study, more attention will be paid to improve high school students' listening comprehension skills by use of a listening website under a CALL environment.

In summary, with the rapid development of CALL education, web-based autonomous learning is becoming increasingly popular all around the world. Numerous studies about the support of Internet technology to improve learners' listening learning also provide a lot of implications for the teacher and the learners. Therefore, more technological studies supporting web-based autonomous English learning will be reviewed in the following literature review.

2.4.3 Previous studies related to CALL and listening learning

In recent years, the use of CALL instruction has become increasingly popular, especially in higher education. In the work of Warschauer and Liaw (2011), they analyzed the role of emerging technologies for autonomous language learning in adult education in the United States. The findings concluded that for listening learning, learners through these technologies not only improved their listening comprehension

skills, but also developed their autonomous learning ability significantly. In addition, different types of learning resources, such as multimedia libraries, blogs, chat rooms, etc. prepare learners with more flexible listening audio materials, thereby promoting their listening comprehension skills.

Chen and Zhang (2011) investigated effectiveness of web-based CALL on college students' listening comprehension. The students' academic performance and attitudes and teacher's attitudes were examined towards using CALL. The results were shown that experimental groups improved their listening comprehension by using web-based CALL comparing with the control group employing the traditional method. The findings also showed that most students have positive attitudes towards using web-based CALL. Compared with higher-level peers, lower-level students are more motivated to practice listening comprehension in a web-based CALL environment. In addition, the teacher expressed their support for applying CALL to improve students' listening comprehension and put forward some potential problems that may affect impede the effectiveness of the web-based CALL, such as how to access technology, students' familiarity with technology, and the role and responsibilities of the teacher in CALL environment.

Al-Baekani (2019) investigated students' intensive listening through CALL in EFL learning. He pointed out that in the process of EFL listening teaching, the practice of students' intensive listening is usually related to the use of media. The findings showed that students who did intensive listening in specialized language classroom or language laboratory have better performance than those who did in the traditional classroom. In addition, the results of the study was also found that most students stated that listening activities were needed to be widely used through CALL,

because they believed that listening activities conducted through CALL enable them being enjoy, relaxed and motivated.

Tagor, Andromeda and Kammer (2017) pointed out the potential difficulties of listening learning for college students, and further explored the impact of multimedia applications on students' listening. The research design is a quantitative t-test with classroom action research as a treatment. The results of the research showed that multimedia applications are more effective than traditional media. Multimedia in their study could improve students' learning activities of listening comprehension. The inspiration of the research is to provide learners and teachers with an alternative teaching method, which equip students with solid supports for further developing their listening comprehension ability.

Hooshang and Zahra (2017) investigated computer-assisted language learning (CALL) as an alternative teaching method to improve and strengthen students' listening comprehension skills. In this study, 30 upper-intermediate students majoring in English language institute as participants were divided into an experimental group and a control group. After two months of the treatments, the experimental group using CALL performed better than the control group following the traditional methods. The results indicated that the application of CALL has a significant effect on improving learners' listening proficiency. At the same time, the findings revealed that CALL as a powerful assistant helped teachers with real and abundant teaching materials and guided students in the classroom.

Therefore, with the continuous development of CALL, it provides increasingly potentials for EFL teaching, especially in improving listening comprehension skills. However, although CALL has been used in language teaching

for a long time, the use of web-based autonomous learning in English listening learning is still very limited in Chinese contexts, especially in high school. Taken into account the current situation of English listening for high school students in China, and combined the features of CALL, this study attempts to explore the use of web-based autonomous learning in solving high school students' English listening difficulties and promoting their autonomous learning ability efficiently.

2.5 Theoretical framework of the study

As described above, this study is conducted for Chinese high school students under the theories of Information Processing (IP), schema and learner autonomy to improve listening comprehension skills in English. It also includes advance organizers based on cognitive teaching strategy with the support of a listening website under a CALL environment.

The first focus of contributions in this research is the theory of information processing (IP) which includes three parts: input, de-coding processing and output. The present study tends to investigate certain facets of listening process, such as the listener in Chinese contexts and how the teacher and foreign language researchers use these resources to help students to become successful learners for learning to listen to English. As Anderson (1985) mentioned "the listener has to identify what is being said, interpret what is being meant, and respond in an appropriate manner when carrying out listening tasks"(p.18).

Therefore, students in this study are required to be aware of what they hear during the listening tasks first, and then move their attention to listening for specific information. The last stage is mainly for making practical and effective use of wide range of relevant listening materials to stimulate students' comprehension skills in English. Students integrate their understanding of listening materials in accordance with these three distinct phases, so as to increases their English listening ability.

The second part of contributions is schema theory, which is related to listening comprehension. Rost (2002) pointed out that listening comprehension is considered as an "inferential process", especially linking to activating the listener's previous schema. That is to say, listeners need to make a preparation of what they will listen with their existing knowledge inside their head. For English listening comprehension learning among high school students in Chinese contexts, most students thought that it is difficult to improve their English listening ability, particularly in a limited time in the classroom. They also mentioned that they do not have sufficient time to evoke their memories on topics and contents of listening materials, which in turn leads to anxiety and pressure they encounter during English listening training.

Therefore, the study attempts to connect the schema with some strategies, such as integrating top down and bottom up processing into listening tasks. Students can recall their past experience and to interpret what they hear according to listening materials provided in pre-listening stage. These tasks are conducted to help students adapt the

new context (e.g.: the topic, the structure and the genre, etc.) and prior knowledge in order to build up a link for comprehension to listen in general.

The third facet of contributions here is the cognitive teaching strategy that is used to plan, monitor and evaluate students' listening comprehension skills in English. As mentioned in chapter 1, in most of time, the real situation is that there is no sufficient time provided for students to listen to English in class, especially in pre-listening preparation. However, as Lynch (2009) pointed out it is important to allocate more attention to complex tasks such as listening.

The use of cognitive teaching strategies provides students with a clear stage of English listening comprehension, such as "input", "de-coding processing" and "output", which help them understand listening tasks at different stages. These stages help students: 1. being aware of listening materials by use of evoking their prior knowledge of each unit; 2. selecting and integrating the texts with some strategies (see section 2.1.6 in Chapter 2) for general understanding English listening; 3. making practical use of listening assignment to develop their ability in English listening comprehension and learner autonomy. All in all, students need to be provided with an integral learning process for English listening comprehension.

As described above in Chapter 2.1.6, the pre-listening process of this study considers advance organizers based on the cognitive teaching strategy, a material that is presented before unfamiliar contents so as to facilitate its integration. They act as the

link for getting new contents. Advance organizers will use these materials to reconstruct the learning in order to help students equip positive learning achievement.

Thus, some activities and tasks, such as new materials of audio on listening comprehension, are used as a bridge to help students to connect what they knew about English listening and what will be learnt. Novak (1980) stated that creative teaching, when well done, includes the selection and use of advance organizers. For example, in this study some preparation of audio and text handouts on listening comprehension are advance organizers. The listening materials are in three sections, which cover prediction, detailed listening and comprehensive understanding. Electronic version of text handouts also covers the new vocabulary lists, sentence structures, answers to student-involved activities and tasks. All advance organizers will be presented to students before a lesson takes place.

Fourthly, in continuation of the above point that the study stated in section 2.4, the common notion of autonomy reminds us to be aware of students' ability to control over of their own learning and to keep their own responsibility in their learning situation. This point is consistent with requirements of the high school English syllabus in China, which requires following student-centered and activating students to be responsible for listening tasks and activities on their own. However, the concept of autonomy does not mean that learning is isolated. The process for learners in autonomous learning is settled between the teacher and learners or learners and their peers together. At the same time,

it further provides a comprehensive direction for the planning, monitoring and evaluation of the learning process. Therefore, in this study learner autonomy will be provided with a broader development space. For example, with the support and encouragement of computer technologies, a combination of student autonomy and a certain learning skill, such as listening comprehension skills can be achieved to improve students' learning ability.

Last but not least, this study used a listening website as a platform in the improvement of high school students' listening comprehension skills in Chinese contexts. It provides students with English listening course instructions in order to learn topics and contents. Students have more opportunities to learn independently so as to develop their sense of learner autonomy. With the educational reform in China, students need to face the change and the impact of new technologies on their learning. The teacher's guidance only has not been able to further meet the requirements of students' progress in learning in the long run. Therefore, the course based on the computer program provides students with equal learning opportunities, which enables students to learn how to use modern technology at anytime, anywhere for their independent learning, and to cultivate their learning habits and necessary Learning skills.

The above ideas are all coherent with the theory of learning, which supports the following view of our understanding of language learning, and the real world context. In a nutshell, the theory of Information Processing (IP), schema theory, cognitive

teaching strategy, as well as the learner autonomy associated with a CALL environment constitute the conceptual framework for the present study. It provides the overarching framework for the project, which is summarized in Figure 2.6.
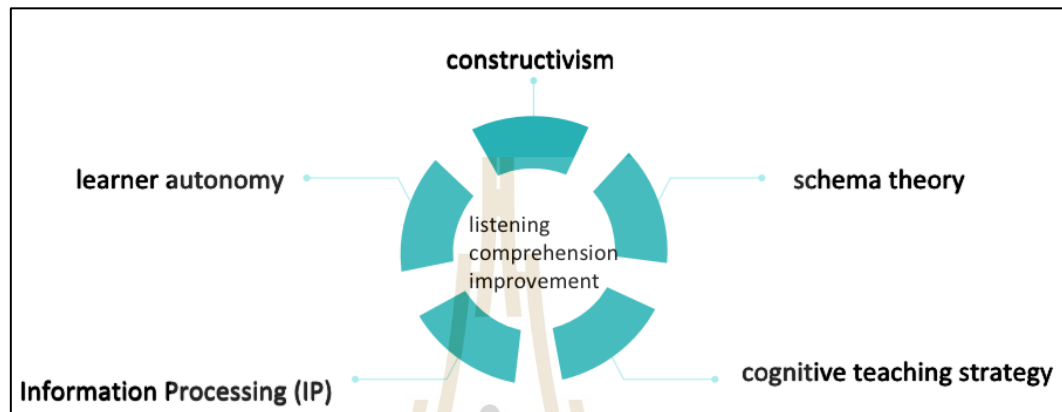
Figure 2.5 Theoretical framework of the study

2.6 Summary

This chapter provided the theoretical framework of the present research with a review of some appropriate literatures on the theory of listening, learning, learner autonomy as well as a CALL environment. These theories and researches support a theoretical framework of this study by virtue of relevant origin of the theory and rationale of the study.

CHAPTER 3

METHODOLOGY

This chapter discusses the research methods and materials of the current study. It begins with the research design, which contains participants, instruments, pedagogic considerations, and description of the experiment. Besides, it also follows materials and approaches employed, including use of a listening website, teaching materials, students' diary, pretest, and posttest, questionnaires and semi-structured oral interviews. Ultimately, the procedures for data collection and analysis are explained here.

3.1 Research design

The research design is laid out by the research objectives and research questions. As for the study, a mixed method design was employed. It is commonly accepted that, quantitative research involves generating numerical data or statistical data while qualitative research considers unstructured or semi-structured techniques in a small sample (Hayes et al., 2013). Comparing with the studies that use quantitative or qualitative approaches alone, mixed methods enable deeper and broader results and they support the researcher to explore complicated phenomena in depth (Riazi & Candlin, 2014). The term "mixed methods research" is roughly understood to use both

qualitative and quantitative data within one single research (Wisdom et al., 2012). Similarly, Courtney (2017) mentioned that mixed methods integrate information more validly and creatively. Also, he stated that it is important to understand how to combine the two methods with students' achievement in nature.

More specifically, as for foreign language learning experimental design, the quasi-experimental design is adopted in the present study, because the quasi-experimental design is commonly used when random assignment is not practical or possible (McMillan & Schumacher, 1984; Gribbons & Herman, 1997). The first part is a quantitative experimental intervention. The second part is based on qualitative analysis of students' and the teacher's interviews and students' diaries.

For quantitative study in the first part, it includes statistical cause and effect of the intervention on students' English listening comprehension, and descriptive statistics on the results of written questionnaires for students. In the part of qualitative study, it focuses on students' perceptions on the intervention. Semi-structured interviews are employed to investigate students' and the teacher's opinions after the treatment. In order to gain integrated information of the student's perspective, they are required to write a diary as an important part during the intervention.

3.1.1 Participants

Polit et al (2004) stated that the population is the group of all members that follow a set of requirements. Also, it is accepted as "the entire set of relevant unit of

analysis, or data" (Nachmias, 1996). However, due to the large sizes of populations, it is impossible to check every individual in the population, and it is too expensive and time-consuming. It is not realistic for a researcher to investigate the entire population in one single research if the population is too large to handle (Cohen et al., 2013).

Therefore, total participants in this study consisted of 94 first-year senior high school students who were from three intact classes. First-year students were selected to participate in this experiment because the students had just entered senior high school and had not participated in any systematic listening comprehension training before. In addition, according to the syllabus of English college entrance examination, it is stipulated that the listening part and the written test part are carried out separately. The students take the listening test twice in March and October of the following year. The school uses the students' highest score into the university entrance system. Therefore, first-year students in senior high school are suitable to be subjects in this study.

Besides, participants were randomly assigned as one control group and two experimental groups and had already passed the Junior High School Entrance Examination (JHSEE). In the 2019 academic year, the average admission score of Zhuchang middle school in Guizhou province is 390 points out of 650. According to the main study, the demographic information for the three chosen classes, including the number, length of learning English, age, gender, English proficiency (see Table 3.7),

were presented in the study in the 2020 academic year. In order to meet ethical requirements, this study prepared a written informed consent form (Appendix M& N) for each participant before the experiment to ensure that each participant understands the purpose of the experiment, participated voluntarily and understood possible challenges and risks in the experiment.

Control Group

The control group took the class using the conventional methods as traditional classes had. Besides, they took a pretest and a posttest as well as filled in questionnaires after the experiment like the experimental groups had. However, the experimental application was not permitted in the control group. They were free to use the ordinary listening methods provided by the teacher to practice the listening according to items of English listening comprehension test. The general routines of traditional listening comprehension lessons in Zhuchang middle school were as follows:

1) The teacher came to the classroom, and told students what topics were covered in the following week. New vocabulary, phrases and expressions were provided before they listened.

2) The students were required to listen to the audio files for the first time and complete questions provided in their English listening textbook. The listening process for the first time was uninterrupted. After that, they checked answers offered by the teacher.

3) The students were required to listen for a second time. The audio files may be played two or three times at the point students think difficult. In this period, students were asked to listen many times until they understood the content completely.

4) The students were required to listen for the last time. There was no stop here. They listened to the whole content and reviewed their answers again.

These routines were very typical of a traditional teaching method for EFL listening comprehension skills in China. However, the teacher using the traditional method did not pay much attention to pre-listening, and they may just talk a little bit on the content of the topic. They clicked the button and asked students to listen many times till the students understand the content fully.

Experimental Group

The experiment was described as a different attempt for listening comprehension in English. First of all, the study paid attention to learner autonomy by virtue of a listening website so as to encourage students to be responsible for their English listening comprehension learning on their own. Second, the study further figured out whether putting schema theory into practice is helpful for the improvement of students' autonomous listening comprehension skills. Generally speaking, based on the support of the schema theory, students were required to follow and integrate the strategy of advance organizers (see Section 2.1.6 in chapter 2 for the definition) into their listening comprehension process. Therefore, two experimental groups were

arranged in this study. EG1 (the first experimental group) used advance organizers during the intervention. EG2 (the second experimental group) did not use it during the intervention. In order to make three groups more clear, the features of each group were shown in the below Table 3.1.

T**able 3.1** Main features of three groups

EG1 (**experimental group 1**)	EG2 (**experimental group 2**)	CG (**control group**)
Instructor:	**Instructor:**	**Instructor:**
(Not the researcher)	(Not the researcher)	The teacher as usual
No teacher provided	No teacher provided	
Learning platform:	**Learning platform:**	**Learning platform:**
The listening website	The listening website	In class
Lesson:	**Lesson:**	**Lesson:**
English listening	English listening	English listening
Learning materials:	**Learning materials:**	**Learning materials:**
Electronic handouts (online resources similar to NSEC)	Electronic handouts (online resources similar to NSEC)	NSEC (New Senior English for China Student's Book)
Learning stages:	**Learning stages:**	**Learning stages:**
Pre-listening (advance organizers); While-listening; Post-listening	While-listening; Post-listening	While-listening; Post-listening
Characteristics:	**Characteristics:**	**Characteristics:**
Student-centered learning with background knowledge awareness and web-based technology	Student-centered learning with web-based technology	Teacher-centered learning with re-listening (listening many times) conditions

It is obvious in Table 3.1 that two experimental groups were asked to use the website to practice listening comprehension out of the class. Therefore, the researcher had to make sure that all participants in the experimental groups can use a listening

website to complete the listening tasks. This platform was prepared for students to

practice their listening comprehension. According to the requirements for the syllabus

of English listening learning for high school students provided by the MOE, each piece

of audio in a listening website had a similar level of difficulty and fits well with the

English listening curriculum for high school students. The teacher did not participate.

Furthermore, participants of EG1 and EG2 used the same listening material, but some

parts of their tasks and activities were different, which was shown in the below Table 3.2.

Table 3.2 Listening activities involved in control and 2 experimental groups

EG1	EG2	CG
Pre-listening:	**Pre-listening:**	**Pre-listening:**
(Carrell, 1988; Underwood, 1993;		
Lynch, 2009)		
Planning: Advance organizers		
While-listening:	**While-listening:**	**While-listening:**
(Anderson, 1985; Underwood,	(Anderson, 1985; Underwood,	(Underwood, 1993;
1993)	1993)	Haiyan, 2018)
Selective attention: Top-down &	Selective attention: Top-down	Listen for the first
Bottom-up model	& Bottom-up model	and second times
Post-listening:	**Post-listening:**	**Post-listening:**
(Anderson, 1985; Underwood,	(Anderson, 1985; Underwood,	(Underwood, 1993;
1993)	1993)	Haiyan, 2018)
Comprehension monitoring: Top-	Comprehension monitoring:	Listen for the third
down & Interactive model	Top-down & Interactive model	time & homework

More specifically, as shown in Table 3.2, for EG2 and the control group, only

while-listening and post-listening stages were included. For EG1, all three stages

including pre-listening, while-listening and post-listening. A more detailed description

was as follows:

1) Pre-listening. The listening task completed within the pre-listening was prepared for the entire listening procedure. In other words, the purpose of pre-listening was to activate the existing background knowledge and to establish a framework of new background knowledge (Carrell, 1988). Activities in pre-listening stage mainly were advance organizers. There were some relevant materials prepared in advance, like the text, the form, the picture or the hypermedia. Students used these materials provided as advance organizers to build their own framework of new knowledge. The purpose of it was to improve students' learning efficiency by enabling students to connect their known content with the content to be learned through advance organizers. Chen (2014) pointed out that, "advance organizers should be at a higher level of abstraction, generality, and inclusiveness than the content to be presented". Therefore, materials from advance organizers provided by this experiment included graphic organizers (pictures), analogies (the topic & goal discussions), which were designed to help students build new knowledge frameworks in their minds.

For instance, in the first unit friendship during the pre-listening stage, the participants in EG1 were provided with the background information about the topic of friendship, including pictures and audio files in order to preview the new lesson. At the same time, some valuable charts were provided to introduce the proportion of friendship in daily life. By doing this, students' interests were stimulated and their familiarity of

the topic about friendship will be made. Next section was to enable students to express their understanding of the topic of friendship according to the past experience. Students were required to write down their thoughts about friendship on the website, and to predict which aspects of friendship they learn in this module. Besides, new vocabularies, phrases and expressions were provided in the following section. They were also crucial in comprehending listening materials. The teacher listed the key words, phrases and expressions for students based on the vocabulary syllabus of high school learning provided by the MOE before they moved to while-listening stage. It aims to avoid lack of comprehension of listening materials because of students' limited vocabulary. For better understanding, Figure 3.1 below was a flow chart showing a general routine that EG1 followed in the 10 modules of pre-listening stage in the listening comprehension courses.

Figure 3.1 The pre-listening stage in EG1

2) While-listening. During the while-listening stage, students were required to complete the listening activities provided by a listening website. Rumelhart (1987) pointed out that at this stage, students did not need to worry about giving a very perfect

explanation, or a very correct answer, but concentrate on getting important or necessary information in their mind. The main purpose in this stage was to enable participants to understand the listening content and obtain the necessary information. Therefore, the activity in while-listening could be understood as the activity for selective attention (Anderson, 1985), including: listening for main ideas, listening for specific details and listening for drawing inferences.

For example, in the first unit friendship, the students of the two experimental groups were asked to complete the following activities. First, for the audio material provided on a listening website, the participants summarized them according to what they heard. The purpose of the summary was that students were able to understand and extract the main idea and respond it appropriately based on the information provided by the listening material. Second, the participants in the two experimental groups were asked to listen to specific details in the next section. As Cook (1989) pointed out, in the text or context, some specific information or some parts of the keyword were used to understand the meaning of the whole text. That is, these details were closely related to the topic and could help students to further understand the text fully. Therefore, in this section, EG1 and EG2 were required to answer questions about some detailed information based on the listening materials. It targeted at verifying whether the student knows what the content actually mean. Moreover, students in two groups were asked to draw inferences according to what they heard. The purpose was to give an

appropriate answer by virtue of utilizing keywords or main expressions. In order to explain this stage more clearly, Figure 3.2 below demonstrated the general routines of while-listening stage in the listening comprehension lessons.

Figure 3.2 The while-listening stage in EG1 & EG2

3) Post-listening. Post-listening stage was an integral part of listening instructional programs (Underwood, 1993), since it was designed to help students consolidate what they are learning. Students were expected to share and engage in what they had learned in this module with their peers. Therefore, post-listening activities included summarizing and discussion.

After completing the listening task in the while-listening stage, students were asked to discuss the topic of the unit and post their opinions and ideas in the forum and gave comments to others. The purpose was to stimulate students' participation, integrate their comprehension of the content and reconcile their knowledge. According to the above description of the post-listening stage, Figure 3.3 illustrated a general routine of students of the two experimental groups in 10 listening comprehension lessons.
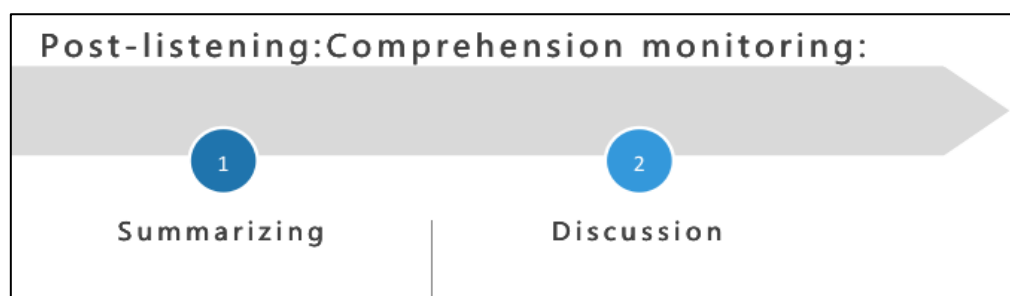
Figure 3.3 The post-listening stage in EG1 & EG2

The teacher

One English teacher who had been teaching English for 8 years in high school was invited to teach the control group. In order to avoid misunderstanding and confusion, it was necessary for the teacher to know the experiment design. Thus, the researcher talked to the teacher about the experiment and provided all listening materials needed in the teaching process in advance.

The teacher-less

In two experimental groups, no teacher was provided. Throughout the 10-week experiment, students completed the listening tasks alone. In order for students to successfully complete the listening tasks, they were told how to use the listening website and how to use it to complete the listening tasks before the experiment. During the experiment, the researcher was responsible for the technical problems students encountered.

The researcher

The researcher was not involved in teaching the control group. However, in

order to ensure that the experiment goes well, the researcher introduced participants in the 2 experimental groups about the use of the listening website and doing the tasks and activities before starting lessons as seen in Appendix S. As mentioned above, the researcher did not participate, but she was there in the listening website all the time in order to make sure the learning process went on smoothly.

3.1.2 Variables

As reviewed earlier in the above section, the approach used in this experiment took the two following aspects into consideration. First, the study adopted the general process of listening (Information Processing, see section 2.2.2 in chapter 2 for the reason), and learner autonomy. That is, the learner was at the central place with an ability of identifying what is being said, explaining what is being meant, and responding accordingly. The listeners had to identify what is being said, interpret what is being meant, and respond in an appropriate manner (Anderson, 1985; Lynch, 2009). Thus, in the current study, the listener was expected to develop the ability to perceive what they hear, to become aware of what the speaker intends, and make an effective use of what they have learned.

Second, this experiment also focused on the relationship between listening comprehension and the schema theory. Anderson (1985) pointed out, "Every act of comprehension involves one's knowledge of the world as well (pp. 21)". In other words, the comprehension did not exist in isolation, it was closely related to the learner's

previously acquired experience. A number of scholars had done plenty of research projects on the relationship between listening comprehension and the schema theory both at home and abroad (e.g.: Schmidt, 1994; Xiaoli, 2012; Haiyan, 2018; Ravindran, Phil & Jayanthi, 2019). Most of them paid attention to the association between background knowledge and listening comprehension, particularly focusing on the learners with a higher English proficiency, such as college students. However, few people emphases how to put this theory into practice of listening comprehension regarding to taking high school students as research subjects. Therefore, the further attempt of this study was to make practical use of the schema theory to support high school students' listening comprehension skills.

The main technical supports for the construction of this approach was the listening website with the latest version of the Wordpress that the students could do the listening practice, there were three main independent variables in the present study, i.e., (a), the treatment applied to English listening comprehension, (b), the use of a listening website and (c) three stages of listening tasks (pre-listening, while-listening and post-listening, see Table 3.2). In terms of the dependent variables, they were (a) students' scores on listening comprehension tests, (b) students' and the teacher's perceptions of learner autonomy built into the intervention process, and (c) students' opinions (EG1) of an advance organizer intervention.

3.2 Learning materials

The project follows the organizational structure and procedures of the Chinese Ministry of Education (MOE) (see section 1.1 in chapter 1 for the requirements). Listening materials that participants use are conducted under English listening syllabus set up by the Chinese Ministry of Education for high school students and are divided into two parts. The first one was for students in the control group. It was high school English textbook that students usually use, that is, New Senior English for China Student's Book (NSEC). It had been widely used throughout the mainland in China, and had included listening sections. They were Standard English or Standard American, which were made with the recordings.

Figure 3.4 Textbook used for the control group

The second was selected for experimental groups. The contents and difficulty level also followed the syllabus set by the Chinese Ministry of Education (CMOE). The range of themes was designated to be comparable to the NSEC version of the high school English textbook, such as the theme of the topic, the amount of units, vocabulary size,

the speed and duration of the listening materials, etc. The difference was that materials not only consist of Standard English and Standard American pronunciation, but also involved different English accents from other countries around the world. Students could be exposed to a variety of pronunciation of English environments. In order to better understand listening materials involved in both control and experimental groups, they were explained in Table 3.3.

Table 3.3 Materials involved in control and experimental groups

CG	EG1& EG2
Textbook	**Textbook**
NSEC version of English textbook	Electronic version of handouts (online resources similar to NSEC)
Period	**Period**
10 weeks	10 weeks
Module	**Module**
1. Friendship	1. Friendship
2. English around the world	2. English around the world
3. Travel abroad	3. Travel abroad
4. Body language	4. Body language
5. Making the news	5. Making the news
6. Great scientists	6. Great scientists
7. Learning efficiently	7. Learning efficiently
8. Global warming	8. Global warming
9. Healthy eating	9. Healthy eating
10. Festival around the world	10. Festival around the world
Material	**Material**
Audio (audio tape, CD)	Online audio (the listening website)
Types	**Types**
Monologue; dialogue; lecture	Monologue; dialogue; lecture;

3.3 The listening comprehension lessons

The subjects and context of the current study were the high school students in China. Therefore, it was crucial to take their learning features into account. First of all, high school students had more subjects to learn, and their study time in class was more compact and fixed. Secondly, for the English subject, the part of reading and writing occupies most of their time and attention, compared with the distribution of English listening (see section 1.2 in chapter 1 for detailed reasons). This experiment fixed the weakness that influences the efficiency of students' listening comprehension skills. First of all, the listening comprehension lessons met the needs of most students, which included the examination section, and also provided various types of audio files to connect listening to real life. In addition, students were provided with the listening website as a platform, where they could practice listening at their own speed and schedules. At last, with the expectation of the design of this course including activities and tasks, students were engaged in raising an awareness of the goal of incorporating their existing schemata (that is, advance organizers) with the new knowledge, and were thereby to the point where they could understand the gist of different listening texts and respond appropriately in conversation. Thus, this program was designed and implemented in accordance with the three stages of listening teaching of Underwood's (1993): 1). Pre-listening stage (i.e. organizing the information that students expect to hear and motivating their relevant prior knowledge); 2). While-listening stage (i.e.

cultivating students' ability of eliciting messages from second language listening input);

3). Post-listening (i.e. integrating a variety of skills, not only to the listening text itself).

The below Table 3.4 was the generic lesson plan employed to illustrate the syllabus of

the listening comprehension course.

Table 3.4 Generic lesson plans involved in CG, EG1 & EG2

CG	EG1	EG2
Goals: By the end of the 60-minute listening comprehension lesson, the students are expected to be brought to the point where they can properly perceive, explain and answer what is being heard to some extent.		
Procedure (Techniques) **Stage 1: Pre-listening** (0 min) Not provided	**Procedure (Techniques)** **Stage 1: Pre-listening** (15 mins) 1.Students view the pictures (chart) provided and answer what the topic is; 2. After that, a short and easy introduce of the topic is provided through the audio file in order to refresh their memories. 3. Meanwhile, new words, phrases and expressions are afforded for the students to be ready to listen.	**Procedure (Techniques)** **Stage 1: Pre-listening** (0 min) No provided
Stage 2: while-listening 1. Greeting and a short introduction are provided in class. 2. The students are asked to listen to the tape for the first time with questions that is in their textbook. 3. After that, the teacher checks their answers and asks whether the students have any problems when they listen. 4. They are required to listen to the tape for a third time, and grasp	**Stage 2: while-listening** 1. The students are asked to summarize listening for the main idea using 'open' multiple-choice questions. 2. There is no 'right/wrong' answer provided. Students check the reference to find out the appropriate answer. 3. In next listening practice session, students are required to listen for the specific details. The activity of 'True/False' is provided to check whether they understand particular expressions in the particular ways. 4. The students listen and draw inference using marking lists, which can help them to match what they hear with the displayed words.	

some detailed and important information, and take notes. 5. For listening for the last time, there is no stop. The students are asked to review the whole content and answers so as to make sure that there is no misunderstanding.		
Sessions: 3 sessions in the while-listening stage (40 mins)	**Sessions:** 2 sessions for the while-listening stage (30 mins)	**Sessions:** 3 sessions for the while-listening stage (40 mins)
Stage 3: Post-listening (20 mins) 1. The students are required to do a written work about the topic, such as writing summaries or small essays. 2. If the students have any questions on topics, they can feel free to ask the teacher in class.	**Stage 3: Post-listening** (15 mins for EG1; 20 mins for EG2) 1. The students are asked to discuss about the topic in the forum, and then make comments for others' opinions. 2. The students need to write a short summary and post to the listening website. 3. If the students have any questions about the topic, they just ask their peers for help on the listening website.	
Feedback: The teacher in class	**Feedback:** The peers online	**Feedback:** The peers online

3.4 The listening website

As described above in the section 3.1.2 in chapter 3, the listening website was built in the Wordpress 5.2.3 for experimental groups to practice their listening comprehension. The details of the listening website was introduced before the beginning of the experiment in order to let students know what are provided in the course. The course interface, tools, and schedule were similar for all groups in each unit. In terms of the contents in each module, the degree of difficulty, and numbers of assignments were also similar. Besides, courses in this listening website could be started

at any time, because they were automated online processing. Students logged in the website, took a course and were responsible for their learning. Many activities and assignments were completed individually according to the schedule that follows the standards and expectations in Chinese high school EFL curriculum.

Step 1: the homepage of the personal website appears when the students log in with their ID number, as shown in Figure 3.5 below.
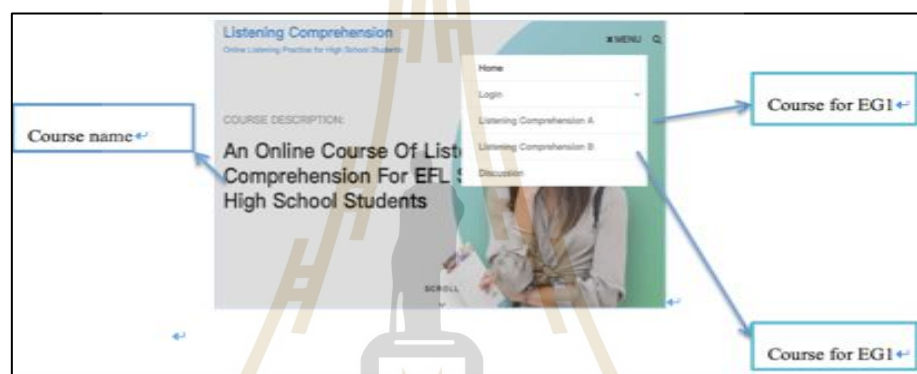
Figure 3.5 Homepages of the listening website

Step 2: as Porter (2004) explained, each online course should be integrated with its purpose, objectives, requirements, content, and activities. Therefore, the course in this listening website (see Figure 3.6) was designed into 4 segments, which were "Courses", "Bulletins", "Listening for examinations", and "Discussions".
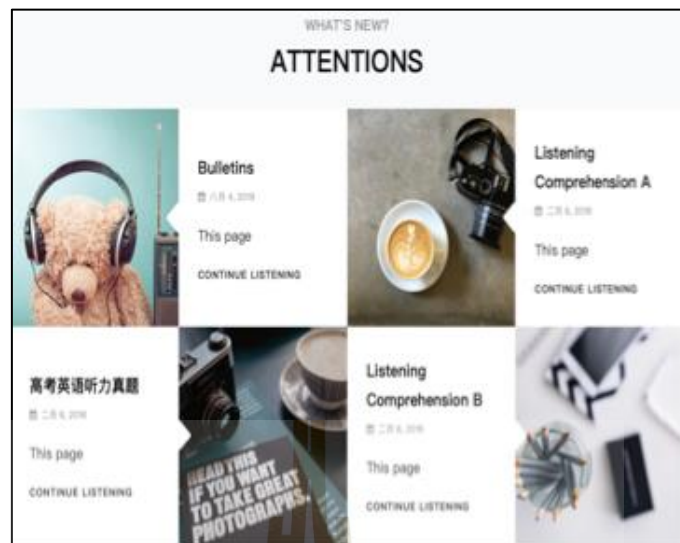
Figure 3.6 Segments of the listening website

Step 3: the "Course" section contained 2 parts. The first was "Listening comprehension A" provided for the experimental group 1, and the second is "Listening comprehension B" provided for the experimental group 2. In order to make the experiment fair, the routines of each module were the same. The interface of the Course sections, including ten separate units, pops out after clicking in, as illustrated in Figure 3.7 and Figure 3.8 below.

Figure 3.7 Course section (Part 1)

Figure 3.8 Course section (Part 2)

Step 4: The students input the correct password provided by the teacher to avoid confusing them during selecting the lessons since two groups participated in the experiment with different listening tasks.

Figure 3.9 Password input

Step 5: According to the 10-week schedule for the students, they click onto the appropriate unit in order. It included contents and activities in whole courses, which are provided to improve students' listening comprehension skills. For example, students in the experimental group 1 clicked the *Unit 1*, which was illustrated by Figure 3. 10 with preparation of the topic "Friendship". However, students in the experimental group 2

had no this stage, and they moved to next stage.
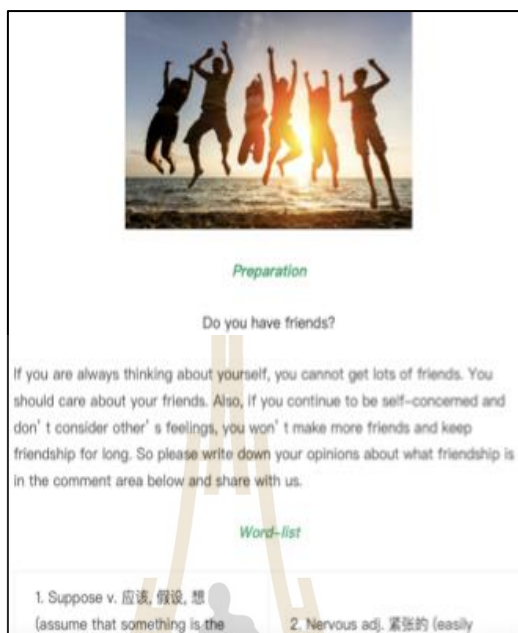
Figure 3.10 Preparation of the topic

Stage 6: the interface of *Unit 1* showed up with audio files, which was illustrated by Figure 3.11 with at least three questions students had to answered. There were four or five audio files they had to complete. These small quizzes were not being graded and the answers were open ended. The students followed the course content for a particular session. Each assignment was illustrated before students start the task, so that they could understand how and when they complete it.
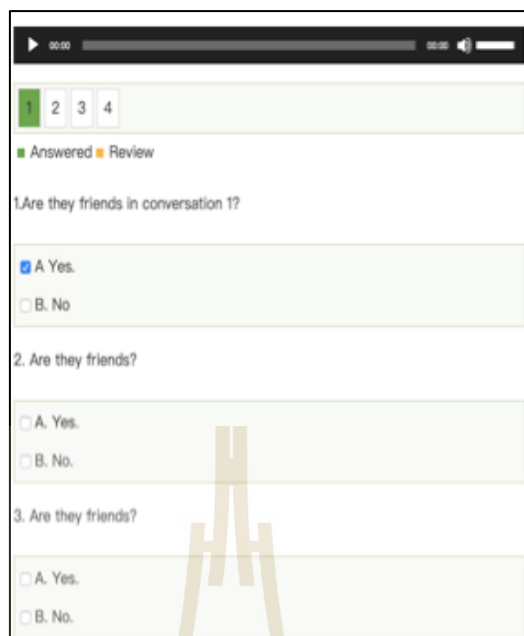
Figure 3.11 Quiz example

Besides, "Bulletins" contain all categorized audio materials contained in courses, because its purpose was to make students concentrate on what they hear, rather than guess the meaning from non-verbal signals, like smile, facial expressions, etc. It was very important not only to contribute to students listening comprehension with auditory only, but also to be helpful for students to build up their concentration which was essential for their successful listening.

Next, "Listening for examinations" section was planned to update the materials of the latest college entrance examination for English listening. These materials were updated within a certain time to ensure that students could be familiar with the listening examinations and gained continuous information for listening test. However, these audio files contained only listening content and did not involve answering questions.

Finally, "Discussions" was arranged to provide students with more opportunities to interact with others and to motivate them to actively participate in and discussed what they have learned. Students shared their different perspectives reflected on his/her comprehension of the content based on specific topics with the peers on the forums.

3.5 Research instruments

Data collection demanded the use of various research instruments. The instruments employed to collect data for this study are: 1) Students' written questionnaires; 2) Semi-structured oral interviews; 3) Student diaries; and 4) Pretest and posttest.

3.5.1 Student questionnaires

Understanding students' opinions on listening comprehension had a significant impact on students' foreign language learning (Liu, Chen & Hwang, 2017; Zulkefly & Razali, 2019). In the current study, each questionnaire included two parts: a) background and b) students' opinions towards the intervention. Students' questionnaires were provided to reveal students' attitudes at the end of the experiment. The students were asked to circle a response on a 5-point Likert scale, including strongly disagree, disagree, undecided, agree and strongly agree.

Questionnaire 1 as shown in Appendix A was designed for student's state of autonomous learning for listening comprehension via a listening website. The aim of the questionnaire was attempted to get in-depth data for the research whether they like

or dislike learner autonomy under a CALL environment. It was also used to investigate whether autonomous learning was useful for their English listening learning or not. Questionnaire 2 (only for EG1) as shown in Appendix D was applied for gathering data about students' perception of advance organizers for listening comprehension.

Therefore, two questionnaires were administered for this study. In the first questionnaire, items 3,4,5,7,8 (see Appendix A) were adapted from Roger (2006). Items 1,2,4,5,7 (see Appendix D) of the second questionnaire were adapted from He (2015). The rest items of the two questionnaires were developed by the researcher.

In order to avoid misunderstandings and confusion, the questionnaire was provided in both English and Chinese. Additionally, two questionnaires were administered to the experimental groups before and after the experiment. The index of item-objective congruence (IOC) developed by Rovinelli & Hambleton (1977) were used for evaluating content validity at the item development process in the study. The IOC and IOC index can be calculated by the formula:

$$IOC = \Sigma R / N$$

ΣR: the total score from experts

N: the number of experts

IOC index: IOC/the number of items

Three English teachers who had been teaching English for over 8 years were invited to validate the language and content in the questionnaire in order to check the

validity of all items (see Appendix C & F). Moreover, the researcher rated each item to check whether it was congruent with the objective (congruent=1, uncertain=0, incongruent=-1).

The results of IOC checking of the draft questionnaire 1 (see Appendix C) showed its content validity calculated is 0.867. According to Rovinelli and Hambleton (1977), an acceptable value for content validity should be higher or equal to 0.5(validity≥0.5). The IOC index (0.875) in draft questionnaire 1 showed that most of the items were acceptable for the study. The results of IOC checking of the draft questionnaire 2 (see Appendix F) presents its content validity calculated are 0.9, which are acceptable for the study.

In order to check the reliability of the two questionnaires, it was trialed in the pilot study. The Cronbach's Alpha value was presented in the below Table 3.5 by use of "Analyze", "Scale" and "Reliability Analysis" in SPSS 16.0.

Table 3.5 Reliability statistics of the questionnaire 1 & questionnaire 2

Questionnaires	Cronbach's Alpha	N of Items
Questionnaire 1	.731	10
Questionnaire 2	.836	10

According to Cronbach and Shevelson (2004), the value of the coefficient of Cronbach's Alpha was from 0 to 1. The higher the value, the more reliable the result was. Besides, Deniz and Alsaffar (2013) also mentioned, effective reliability of the questionnaire was found if the Alpha is higher or equal to 0.7 ($\alpha \geq 0.7$). As shown in

Table 3.5 above, Cronbach's Alpha of the two questionnaires were .731 (α=0.731) and .836 (α=0.836) respectively. Therefore, the two questionnaires could be considered reliable in the study.

3.5.2 Semi-structured interviews

The follow-up oral interview was conducted to gather in-depth information about students' and the teacher's opinions towards learning listening comprehension in English by virtue of autonomous learning. Interviews were acknowledged as a useful way for producing information in research dealing with personal experience and the perspective (Holstein & Gubrium, 2004; Silverman, 2004). As a qualitative research instrument, an interview supports the comprehension of "the meaning that the participants held about the problem, not the meaning that the researchers bought to the research or writers express in the literature" (Creswell, 2013, p. 175). There were three types of interviews, which included unstructured, semi-structured, and structured.

A semi-structured interviews involved asking a series of pre-designed structured questions and then, getting the responses of the interviewees, seeking additional information with open questions. The flexibility of the semi-structured interview ensured that the researcher could collect wide range of standardized participants' data (Gall et al., 1999). They also could provide useful information on local practices and users' visions (Keeffe et al., 2016).

Therefore, in terms of the aim of gathering information that need to be not

only standardized but also in-depth, a semi-structured interview technique was selected

for the student's interview in this study. It was arranged after the students were given

the post-test. The results of IOC checking from the student's interview are 0.875, which

was higher than 0.5(validity≥0.5) (see Appendix I). It meant that almost all items were

judged to be and relevant to the objective of the study.

3.5.3 Student diary

In order to collect more comprehensive information about students' learning

time and other aspects of assignments, both control group and experimental groups

were required to write a diary to record their listening situation every time, including

the length of learning time, place, materials (contents), feelings and resources etc. More

specifically, students recorded their listening activities after class, which included

problems and doubts they encountered in the unit. Students could discuss and solved

the problems with their peers at the post-listening stage based on what they had

recorded. In order to make them feel free to write any comments and suggestions related

to the listening course, participants were allowed to write in Chinese. Finally, these

diaries were submitted to the researcher at the end of the experiment, and only used for

this study as a way of getting qualitative data. The researcher divided students' diary

into 3 parts, including the length of study time, place, content, etc., and then categorized

the similarities and differences of it, and finally draw experimental data.

3.5.4 The pretest and the posttest

The pretest and the posttest were randomly taken from the National College Entrance Examination (NCEE) of English test paper (see Appendix K & L). The aim of the test was to examine students' mastery of English listening comprehension. The test paper consisted of two sections: intensive listening (25%), and listening for comprehension (75%).

In terms of the National College Entrance Examination (NCEE), it is also called "Gaokao" and is designed to test students' learning proficiency before they enter the university. It was an academic examination held annually on June 7th and 8th, which was uniformly designed by the Ministry of Education and all the students across the country had to take exactly the same examination in China. It was also a prerequisite for judging whether students achieve the undergraduate level. This standard test had been recognized by high education institutions in China since 1978. Therefore, the NCEE of English test paper which had a high level of authority and acceptance in China was employed partly in this study to examine the students' comprehensive understanding of the listening content and how to express statements of the listening content.

More specifically, Section A contained listening for details, accurate inference of information, judging facts, and it was designed to examine the degree of students' knowledge of what they heard. Section B contains listening for main ideas,

and completing grids or lists, etc. Students then entered their answers to the corresponding column according to what they discovered from the listening materials. Section C included understanding of information, judging facts as well as writing reasonable statements, etc. It targeted at testing students' comprehensive understanding of the real listening context and the ability of acquiring information. Each test, both pretest and posttest had around 1500 to 2000 words in total. The duration was about 30 minutes.

3.6 Data collection procedures

In order to collect data, the procedures of the listening comprehension test, two questionnaires, students' semi-structured interview, students' diaries were presented.

3.6.1 Procedure of English Listening Comprehension Test

The pretest and posttest in three groups were used to determine whether there was any difference in the listening comprehension test after 10 weeks of the intervention. All participants, including the control and the experimental groups, were arranged to take a pretest before the treatment. It was not only used as a measurement of students' English listening proficiency, but also as a criterion of whether students made progress after the intervention.

3.6.2 Procedure of listening teaching

The approach in two experimental groups abide by the information process

(IP), the learning theory (the schema theory), the learning strategy (advance organizers: EG1) as well as an autonomous learning environment. The listening activities and assignments were related to students' previous knowledge; the three stages of listening (pre, while, and post-listening) were conducted to provide a clear picture for listening process; and the support of the computer technology (based on the listening website) served as a platform for students' autonomous listening comprehension skills.

Beside, the process of intervention was carried out purely outside the classroom. Students logged in to the listening website, followed the content of each unit, and completed tasks. Activities included independent tasks and writing assignments. Independent tasks required students to select appropriate answers after they listened. In terms of each module, there was no graded assignment managed for students with their busy study outside the classroom, but offered detailed explanations of each item if they answer wrongly. The writing assignment required students to do self-expression posted on the forum based on questions raised at the end of each module.

This part provided benefits on their self-evaluation by their own understanding of English listening materials. In this case, participants could experience online self-assessments. Also, they could get valuable experience and got to know how to express themselves clearly.

More specifically, three phases were conducted as detailed procedures of listening teaching to collect data.

Phase 1 took one week (first week). In this week, a pretest was provided for both control group and two experimental groups. Phase 2 is carried out for 10 weeks (from second week to eleventh week). Listening materials and assignments were updated every week and were automatically shown in the listening website. The assignments were the next part of the site after they listened, so that students could easily work with questions from the listening tasks that they logged into the course. Some parts of tasks are offered in accordance with examination mode, which made students get familiar. The researcher was online, but did not make any comments. Participants also did not have any specific requirement of pass or fail, but were provided different assignments and activities in order to improve their English listening comprehension skills. Additionally, the experimental groups did not need to take up class time to practice their listening. Phase 3 was carried out for one week (week 12). Posttest was given to both experimental group and control groups as well. The flowcharts were shown below.
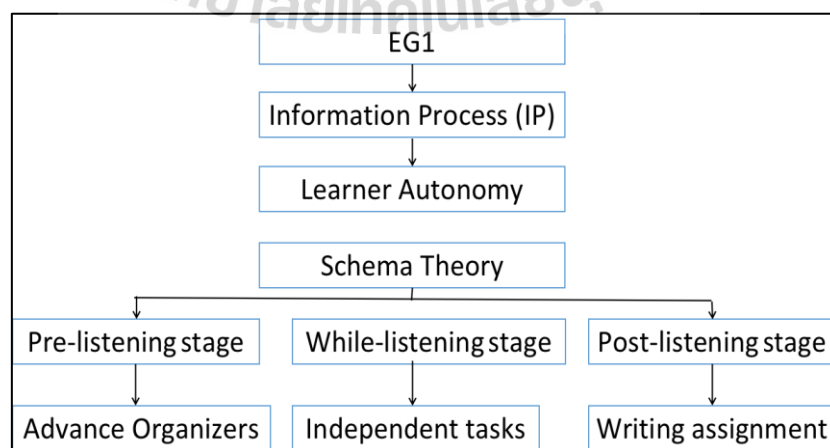
Figure 3.12 Procedure of listening teaching in EG1
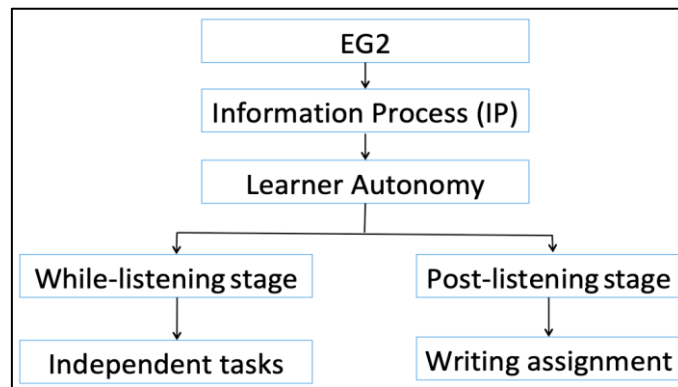
Figure 3.13 Procedure of listening teaching in EG2

3.6.3 Procedure of the questionnaire

Participants in the two experimental groups were required to complete the questionnaires before and after the experiment. After the questionnaires were collected, they were coded in numbers.

3.6.4 Procedure of the semi-structured interview

In terms of the semi-structured interview, the criteria of the Alberta Municipal Health and Safety Association (AMHSA, 2010) were use to choose the number of interviewees as a representative interview sample (see Appendix G). About 60 students were involved in the two experimental groups, and 19 students were the minimum and appropriate number of interviews. After that, 19 interviewees on the basis of students' score of English listening comprehension are randomly selected from 60 participants in two experimental groups and were called on to one classroom and take face-to-face interview one by one by the researcher. The responses were recorded by a tape recorder and note taking during the process of the interview.

3.6.5 Procedure for the student diary

The assignment of writing a diary for students both control and experimental groups was scheduled in the second phase. Students were required to record listening activities every time, which included the length of learning time, place, materials (contents), feelings and resources, etc., and to send emails to the teacher/ the researcher. At the 12th week, students' diaries were coded in numbers without students' names so as to protect their privacy. The criteria of coding students' diary followed students' perceived ease of use, perceived usefulness, and their perspectives of usage and continuance intention to use in English listening course.

3.7 Data analysis

This part showed the methods of data analysis used in the present study. Data taken from the 12-week experiment on English listening pretest and posttest together with data from the written questionnaire are presented concerning quantitative analysis, while data taken from students' diaries and semi-structured oral interviews are analyzed qualitatively.

3.7.1 Quantitative data analysis

Data of both pilot study and the main study were analyzed. After data collection, basic descriptive statistics were carried out using SPSS (16th Edition) (IBM, 2008) to get a general picture of the data. Cronbach's alpha (α) was also used to test the

internal consistency and reliability of each item in the questionnaire. One-way analysis

is used to compare mean scores of the participants in the pretest and posttest so as to

determine whether there were any statistically significant differences in the mean score

among the three groups based on the student's pretest and posttest scores. According to

the results, it could be decided whether the treatment had effects on English listening.

In terms of questionnaires, they were analyzed with descriptive statistics to

answer the first and second research question. Paired samples t-test in SPSS 16th was

also conducted to analyze the data from the questionnaire.

3.7.2 Qualitative data analysis

Lowhorn (2007) stated that the qualitative analysis of the data was analyzed

through thematic analysis and it described the "real" situation of the study, as it was an

anthropological and ethnographic approach for the participants rather than the design

of artificially controlled variables. Therefore, in the present study, data analysis was

conducted from the semi-structured interview and students' diaries. It was expected that

those data can provide the researcher an overview and in-depth information about

students' and the teachers' opinions on this intervention.

To sum up, Table 3.6 summarized a series of data collection and analysis

methods in collection of the present research question.

Table 3.6 Data collection and analysis methods

Research Questions	Data Collection Methods	Data Analysis Methods
1. Are there any significant differences in the development of English listening comprehension skills of Chinese high school students between Experimental Group 1, Experimental Group 2 and the Control Group? If so in what ways?	Pretest and posttest	One-way ANCOVA Descriptive statistics Post Hoc Multiple Comparison Tests
2. When comparing the performances of Experimental Group 1 and Experimental Group 2, does the use of advance organizers significantly improve the development of listening comprehension skills of Chinese high school students? If so in what ways?	Pretest and posttest Questionnaire on improvement of listening comprehension skills	Descriptive statistics
3. What are the Chinese high school students' opinions of the teaching approaches used in Experimental Group 1, Experimental Group 2 and the Control Group?	Questionnaire on reflections of the intervention Semi-structured interviews Students' diaries	Descriptive statistics Content analysis
4. What are the Chinese high school students' opinions of the use of advance organizers for improving their English listening comprehension skills?	Questionnaire on reflections of the intervention Semi-structured interviews Students' diaries	Descriptive statistics Content analysis

3.8 Pilot study

This section showed information of pilot study to check the feasibility and practicality of the experiment. 30 students of the pilot study in different classes were

randomly chosen to participate from Zhuchang middle school based on convenience and availability in the pilot study for three weeks.

It began in September 2019. Before starting the English listening course, three groups were called on to one classroom and completed the English listening comprehension test 1 (Appendix K) as the pretest. After the pretest, the researcher provided the experimental group with a short introduction on how to complete English listening course independently based on the listening website. The control group was taught through traditional teaching English listening methods by the teacher who used to teach them. Besides, the students were required to write a diary, including the length of learning time, place, materials (contents), feelings and resources, etc., and they are required to send emails to the teacher/ the researcher. After three weeks, three groups took the English listening comprehension test 2 as a posttest. Next, the two experimental groups filled in the questionnaires. Then, according to AMHSA (2010) in Appendix S, 13 students in two experimental groups were selected randomly to participate in the interview. The data were recorded.

Based on the findings of pilot study, most students believed that they felt ease to practice their listening comprehension independently. Besides, they considered they could make use of free time outside classroom in learning of English listening comprehension and had positive attitudes towards the usage of learner autonomy under the technology-assisted language learning. Finally, students and the teacher also

expressed their motivation to use this approach in their English listening learning in the future.

According to the situation of the pilot study, some revision had been done to adapt on the experiment. When the students were interviewed, some of them did not understand the meaning of an advance organizer. Therefore, the researcher needs to provide sufficient explanation about the advance organizer during the interview in the main study so that the students can understand interview questions well. However, the most of procedures recorded well, so no adjustment is needed.

3.9 Summary

This chapter showed the research design employed in the present study. The research methodology used included research methods and materials, research instruments for data collection, the treatment phases and methods for data analysis. And in addition to that, the rationale for construction of instruments in the present study was also discussed. In the next chapter, the research findings and relevant discussions are presented.

CHAPTER 4

RESULTS AND DISCUSSION

The main purpose of this chapter is to present the findings of this study in response to the four research questions shown in Chapter 1. There are five sections in this chapter. The results of the participants' performance on the pretest and posttest are presented in the first section. The second section deals with the results regarding students' and the teacher's opinions of the whole experiment, respectively. The third section is the results regarding the students' reflections towards advance organizers. The fourth sections are the answers and discussions regarding the four research questions and the last one is the summary of the whole chapter.

4.1 Assessment of listening

The four research questions (See section 1.5) were conducted based on the quasi-experimental design. This section described the performance of students in pretest and posttest of the college entrance examination listening test that was selected for the past 10 years. As described in Section 3.2.5 in Chapter 3, the pretest (see Appendix K) and posttest (see Appendix L) had the same scoring criteria and fixed reference answers. The test score was 100 points in total.

4.1.1 Pretest results

The pretest was prepared at the beginning of the experiment. As mentioned earlier in section 3.5.4, the purpose of the pretest was to assess the students' listening comprehension skills both in two experimental groups and the control group. All results were recorded and anonymously numbered for evaluation. Two experienced English teachers were invited to rate the results of the two experimental groups and one control group, in order to test the general English listening proficiency of the participants. It was also to explain the results of the post-experimental test, especially exploring if there were any improvements or differences in the scores of the test after the treatment.

Five parts were employed in the whole analytical results in the experiment, which were Descriptive Statistics, ANOVA, Post Hoc Multiple Comparison Tests, ANCOVA and Paired Sample T-test to check whether there were statistically significant differences in the pretest scores among the three groups.

First, based on a descriptive analysis of the pretest scores, the mean among the three groups were compared, and the results were used to present an overview of the participants' performance. And then, ANOVA was used to show whether there were any significant differences among the three groups before the experiment. The levels of all tests were set at 0.05. Moreover, the Post Hoc test conducted in SPSS was applied to analyze whether statistically significant differences existed among the three groups regarding to their English listening performance. In addition, ANCOVA was employed

to see whether there was any statistically significant difference after the treatment. Finally, a Paired Sample T-test was presented to test whether there existed statistically significant difference before and after the intervention in each group.

Table 4.1 Descriptive statistics in the pretest

Group	N.	Mean	Std. Deviation	Range	Minimum	Maximum
EG1	31	66.55	18.83	80.00	10.00	90.00
EG2	33	66.70	15.35	73.00	15.00	88.00
CG	30	75.73	8.88	30.00	60.00	90.00

*EG1: Experimental group 1; EG2: Experimental group 2; CG: Control group

Table 4.1, Descriptives, provided familiar descriptive statistics for the three groups in the pretest. It was shown that the mean scores of CG were 75.73, which was higher than that of EG1 (mean = 66.55) and EG2 (mean = 66.70). In the pretest of the experiment, the control group had the highest mean scores in the three groups. Moreover, according to the Std. Deviation, it could be seen that S.D. of CG was 8.88; S.D. of EG1 was 18.83, and S.D. of EG2 was 15.35. That is to say, the students in the control group had relatively stable and less fluctuating scores before the experiment compared to the two experimental groups and their scores were quite close.

Table 4.2 ANOVA in the pretest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1694.890	2	847.445	3.769	.027
Within Groups	20460.514	91	224.841		
Total	22155.404	93			

As shown in Table 4.2 above, Referring to the SPSS output, the p-value of

ANOVA was 0.027. The between groups differences was significant (p =. 027). That is, there were statistically significant differences among the three groups in the pretest. In other words, the participants among the three groups had different English listening proficiency before the treatment to some extent. In order to see which pairs of means are significantly different when the ANOVA was statistically significant, Post Hoc tests were provided in the next section.

Table 4.3 Post Hoc Multiple Comparison Tests in the pretest

	Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Tukey HSD	EG1-EG2	-.15	3.75	.999	-9.09	8.79
	EG1-CG	-9.18	3.84	.049	-18.33	-.035
	EG2-CG	-9.04	3.78	.049	-18.05	-.023

Table 4.3 (The Post Hoc tests) presented the comparison of the mean of students' English listening proficiency among the three groups in the pretest. First, as for EG1 and EG2, the results were shown in the Tukey HSD test, which illustrated that there was no statistically significant difference between EG1 and EG2 (p=0.999>0.05). That is, EG1 and EG2 had the same level of English listening proficiency before the intervention.

As for the comparison of EG1 and CG, a statistically significant difference existed between the mean scores of those two groups (p=0.049). Also, the mean score of CG was more by 9.18 than those of EG1. In other words, CG performed significantly better than EG1 in terms of their English listening proficiency before the experiment.

Regarding EG2 and CG, it was shown that there was a statistically significant difference between EG2 and CG (p=0.049 < .05). The mean score of CG was greater by 9.04 than those of EG2. To conclude, the result in the pretest indicated that the three groups were at different level of English listening proficiency and that the mean scores of the students in the control group were the highest of all groups before the experiment.

4.1.2 Posttest results

As with the measures conducted in the pretest, descriptive statistics were firstly used to portray an overview of the data from the control group and 2 experimental groups, thus observing if there existed a difference among the three groups after the intervention in terms of students' English listening comprehension skills. Table 4.4 and Table 4.5 showed that the mean of EG2 was the highest (mean=74.06), comparing with EG1 (mean=71.55) and CG (mean=71.40). Compared to the pretest, the mean scores of EG1 increased by 5.00 points (pretest=66.55); EG2 increased by 7.36 points (pretest=66.70); while CG decreased by 4.33 points (pretest=75.73).

As can be seen from Table 4.1 and Table 4.4, it presented that the mean scores of the two experimental groups were lower than the control group's mean scores in the pretest, while after the 10 weeks of pedagogic intervention, the mean scores among the three groups were quite close. Also, students in EG1 and EG2 had higher mean scores than those in CG in the posttest.

As for the standard deviation of the posttest, the standard deviation of EG1

was reduced by 3.27 points (S.D=15.56); the standard deviation of EG2 was reduced

by 5.47 points (S.D=9.88); and the standard deviation of CG was reduced by 0.2 points

(S.D=8.68). Moreover, it can be seen from Table 4.4 and 4.5 that the Deviation

(Std.=8.68) in CG was lower than that in EG2 (Std.=9.88) and EG1 (Std.=15.56) in the

posttest. Thus, it is clear from the table that the scores of EG2 and CG were evenly and

closely distributed around the mean scores. In other words, the scores of EG1 had

greater dispersion than the scores of EG2 and CG. As for EG2, the posttest scores

become more regularly distributed together with the mean score than that in EG1 after

the 10-week experiment despite starting at a lower level in the pretest.

Table 4.4 Descriptive statistics in the posttest

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Minimum	Maximum
EG1	31	71.55	15.56	2.79	65.84	77.25	15.00	94.00
EG2	33	74.06	9.88	1.72	70.55	77.57	46.00	92.00
CG	30	71.40	8.68	1.58	74.64	75.56	45.00	85.00
Total	94	72.38	11.69	1.21	74.78	74.77	15.00	94.00

Table 4.5 Comparison between pretest and posttest in each group

Group	N	Test	Mean	Mean Differences	St. D
EG1	31	Pretest	66.55	5.00	18.83
		Posttest	71.55		15.56
EG2	33	Pretest	66.70	7.36	15.35
		Posttest	74.06		9.88
CG	30	Pretest	75.73	-4.33	8.88
		Posttest	71.40		8.86

As shown in Table 4.6 below, ANCOVA was used to check the test of Between-Subjects Effects of the treatment among the three groups in the posttest. Referring to the SPSS output, the p-value of ANCOVA in the posttest was 0.597. It indicated that there was no statistically significant difference among the three groups in the posttest in terms of English listening comprehension skills in general. As mentioned above, students among the three groups had different levels of English listening proficiency in the pretest, while after 10 weeks of the intervention, the students' English listening proficiency of the three groups tended to be at similar level. That is, compared with the control group, two experimental groups did make the achievement after 10-week treatment to some extent.

Thus, it can be said that this alternative approach in CALL environment to develop English listening comprehension was significantly more effective than the traditional approach in the classroom. Additionally, in order to see whether specific pairs of the mean were significantly different, Post Hoc tests were performed again in the next section.

Table 4.6 ANCOVA in the posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	143.457[a]	2	71.728	.519	.597
Intercept	491091	1	491091.130	3553.889	.000
Group	143.457	2	71.728	.519	.597
Error	12574.756	91	138.184		
Total	505212.000	94			
Corrected Total	12718.213	93			

a* Dependent Variable: posttest b*. R Squared = .011 (Adjusted R Squared =-.010)

4.1.2.1 Post Hoc Multiple Comparison Tests

As mentioned in the pretest, the Post Hoc test was used to examine whether there were statistically significant differences in mean scores of between-groups relationship in terms of their English listening performance. As for EG1 and EG2, it was shown in the Tukey HSD test, which presented that there was no statistically significant difference between EG1 and EG2 (p=0.670 > 0.05).

In terms of the comparison between EG1 and CG, there was also no statistically significant difference in the mean scores of EG1 and CG (p=0.999>0.05). Moreover, it presented that no statistically significant difference existed between the mean scores of EG2 and CG (p=0.643>.05) after the intervention. In the pretest, there were statistically significant differences in the English listening comprehension of the three groups of students. The students' performance of English listening comprehension in the control group was significantly better than that of the two experimental groups.

However, after 10-week intervention, the students' mean scores in the two experimental groups was higher than that of the control group, especially EG2. That is, the scores of their English listening in two experimental groups had been increased. It also can be said that this alternative approach had an effective and positive role in improving students' English listening comprehension skills, compared to the traditional method used by the control group to some extent.

Table 4.7 Post Hoc Multiple Comparison Tests in the Posttest

	Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Tukey HSD	EG1-EG2	-2.51	2.94	.670	-9.52	4.49
	EG1-CG	0.14	3.01	.999	-7.02	7.32
	EG2-CG	2.66	2.97	.643	-4.41	9.73

4.1.2.2 Paired sample t-test

A paired-sample t-test was conducted in SPSS to further analyze whether there was a statistically significant difference between the mean scores for two experimental groups and the control group before and after the treatment, respectively.

The results shown in Table 4.8 indicated that mean scores of EG1 had increased by 5.00 points from the pretest to the posttest. However, with a p-value higher than 0.05 in the mean score between the pretest and the posttest, there was not a statistically significant difference between pretest scores and posttest scores for EG1 with t (30)= -1.55, and p=0.132(>0.05). Thus, it indicated that the students' performance had not changed statistically after 10 weeks of the experiment.

As for EG2, the mean had increased by 7.36 points in the mean scores from the pretest to the posttest. According to Table 4.8, the p-value was 0.041, which was lower than 0.05 (t (32)= -2.13) between the pretest and the posttest. The results presented that there was a statistically significant difference between the pretest and the posttest, which means that this English listening course with technological environment (the personal website) and no advance organizers had a positive role in improving

Chinese high school students' English listening comprehension skills.

In the control group, the mean had decreased by 4.33 points in the English listening comprehension test from the pretest (mean = 75.73, SD = 8.88) to the posttest (mean = 71.40, SD = 8.86). With p value lower than 0.05 (p = 0.045), there was a statistically significant difference in the posttest of the control group after treatment. However, the students in the control group did not improve their English listening comprehension. However, the students in the control group did not improve their English listening comprehension instead they regressed significantly. This was a surprising result given that the traditional approach is so widely used and because it is believed to be effective.

Table 4.8 Paired Sample T-test for the three groups

| Group | Tests | Paired Differences | | t | df | Sig. (2-tailed) |
		M	S.D			
EG1 (N=31)	Pretest (66.55)-Posttest (71.55)	5.00	17.96	-1.55	30	.132
EG2 (N=33)	Pretest (66.70)-Posttest (74.06)	7.36	19.90	-2.13	32	.041
CG (N=30)	Pretest (75.73)-Posttest (71.40)	-4.33	11.35	2.09	29	.045

In conclusion, after a comprehensive and deep analysis for the pretest and posttest of the two experimental groups and the control group, the results (Table 4.7 and 4.8) determined that there existed statistically significant differences before and after the treatment in their English-listening proficiency in EG2. The students' performance in EG2 in English listening comprehension skills had significantly improved.

The results also indicated that there was no statistically significant difference between the pretest and the posttest in students' performance of English listening comprehension in EG1. That is, students with the use of advance organizers did not make any statistically significant improvement in their English listening performance.

Additionally, there was statistically significant difference before and after the experiment in CG in terms of their English listening comprehension. However, it is clear to see in this study that the approach employed in CG had negative effects in students' English listening performance and it made students go backwards a lot. The reason might be in the conventional English-listening learning, students could not learn to listen autonomously and systematically, but mechanically followed the teacher to repeat to listen until they caught up all listening contents.

All in all, EG2 did improve better than EG1 and CG in terms of English-listening skills in general after 10-week pedagogic treatment, which answered the first research question.

4.2 Students' reflections on the autonomous listening comprehension approach

This section deals with an investigation of students' reflections of autonomous listening comprehension. This included a written questionnaire, the semi-structured interview and the student diary.

4.2.1 Data from the written questionnaire

The questionnaire of the students' reflections of autonomous listening comprehension was provided twice (see Appendix A: Students' opinions on autonomous listening comprehension). The first one was completed before the experiment and the second was completed after the experiment. After 10 weeks of the treatment, the data of the questionnaire was analyzed to explore the extent of the students' agreement in terms of learner autonomy.

4.2.1.1 Results of the students' reflections on autonomous listening comprehension in EG1

In order to know the distribution of items from the Appendix A, a descriptive statistics (see Table 4.9) was conducted to record the results of the questionnaire before and after the experiment. It was conducted into 5 items, which were strongly agree, agree, not sure, disagree and strongly disagree. The SPSS results before the experiment showed that 14% students strongly agreed that they found it difficult to learn English listening autonomously, and to clearly set appropriate listening goals before the experiment, 41.48% agree, 32.25% not sure, 9.05% disagree and 3.02% strongly disagree. However, after the experiment, 15.17% students strongly agreed that they could learn English listening independently using the technological devices and felt more confidence of understanding the listening materials, and arranging the study plan, 49.85% agree, 23.73% not sure, 8.95% disagree and 2.30% strongly disagree. It

was obvious to see that the rise of positive attitude for learning English listening autonomously was up.

In addition, before the experiment, 12.33% students strongly agreed that they were confused about putting newly learned knowledge into practice, and felt hard to make well use of free time to practice listening comprehension, 34.07% not sure, 40.55% agree, 10% disagree and 3.05% strongly disagree. In contrast, after the experiment, 15.17% students strongly agreed that they had a certain degree of improvement in the adapted grasp of new knowledge, and there was also a great progress in arranging listening practice with free time, 50% agree, 23.08% not sure, 9.07% disagree and 2.68% strongly disagree. It could be said that after the experiment, students supported the idea of putting newly learned knowledge into practice more positively.

Furthermore, before the experiment, 10.29% students strongly agreed that it is hard to use audio materials own their own for listening comprehension outside the classroom, 44.05% agree, 39.33% not sure, 4.75% disagree and 1.58% strongly disagree. After the experiment, 15.67% students strongly agreed with the arrangement of employing available English listening materials outside the classroom independently, 47.75% agree, 30% not sure, 4.90% disagree and 1.68% strongly disagree. It was clear that students supported to use audio materials own their own for listening comprehension outside the classroom. Therefore, with high percentage of students'

opinions of the autonomous listening comprehension as strong agreement, students in

EG1 felt more confident with the autonomous listening comprehension.

Table 4.9 Results of students' opinions on autonomous listening approach for EG1

EG1	Before the experiment	After the experiment
1. Students' opinions of learning English listening autonomously and setting appropriate learning goals	Strongly agree: 14% Agree: 41.68% Not sure: 32.25% Disagree: 9.05% Strongly disagree: 3.02%	Strongly agree: 15.17% Agree: 49.85% Not sure: 23.73% Disagree: 8.95% Strongly disagree: 2.30%
2. Students' opinions of putting newly learned knowledge into practice and making good use of free time	Strongly agree: 12.33% Agree: 40.55% Not sure: 34.07% Disagree: 10%% Strongly disagree: 3.05%	Strongly agree: 15.17% Agree: 50% Not sure: 23.08% Disagree: 9.07% Strongly disagree: 2.68%
3. Students' opinions of using available English listening materials outside the classroom independently	Strongly agree: 10.29% Agree: 44.05% Not sure: 39.33% Disagree: 4.75%% Strongly disagree: 1.58%	Strongly agree: 15.67% Agree: 47.75% Not sure: 30.00% Disagree: 4.90% Strongly disagree: 1.68%

4.2.1.2 Results of the students' reflections on autonomous listening

comprehension in EG2

The SPSS results in Table 4.10 indicated the general states of the

students' reflections of autonomous listening comprehension before and after the

experiment. More specifically, before the experiment, 12.00% students strongly agreed

that they had ability to learn English listening autonomously, and set appropriate

learning goals to complete the task independently, 40.55% agree, 33.07% not sure, 11.07% disagree and 3.31% strongly disagree. However, after the experiment, 13.05% students strongly agreed that they could learning English listening comprehension autonomously and could better set appropriate goals for listening learning to some extent, 44.90% agree, 30.75% not sure, 10.50% disagree and 0.80% strongly disagree.

Moreover, before the experiment, 14.00% percentage of students strongly agreed that they were capable to put newly learned knowledge into practice and making well use of free time own their own, 42.05% agree, 30.50% not sure, 11.07% disagree and 1.83% strongly disagree. However, after the experiment, 15.07% students strongly agreed that they could put newly learned knowledge into practice and making well use of free time on their own, 46.00% agree, 27.09% not sure, 9.55% disagree and 2.29% strongly disagree.

In addition, before the experiment, 10% students strongly agreed with the idea of using available English listening materials outside the classroom independently, 41.75% agree, 38.00% not sure, 9.75% disagree and 0.50% strongly disagree. On the contrary, after the experiment, 12.05% students strongly agreed that they could use available English listening materials outside the classroom independently, 43.45% agree, 33.50% not sure, 9.47% disagree and 1.53% strongly disagree. All in all, after the intervention, the students with a high percentage of agreement in EG2 showed their highly satisfied with this approach and thought that

their ability of the autonomous listening comprehension was improved.

Table 4.10 Results of students' opinions of learner autonomy for EG2

EG2	Before the experiment	After the experiment
1. Students' opinions of learning English listening autonomously and setting appropriate learning goals	Strongly agree: 12% Agree: 40.55% Not sure: 33.07% Disagree: 11.07% Strongly disagree: 3.31%	Strongly agree: 13.05% Agree: 44.90% Not sure: 30.75% Disagree: 10.50% Strongly disagree: 0.80%
2. Students' opinions of putting newly learned knowledge into practice and making well use of free time	Strongly agree: 14% Agree: 42.05% Not sure: 30.50% Disagree: 11.07% Strongly disagree: 1.83%	Strongly agree: 15.07% Agree: 46.00% Not sure: 27.09% Disagree: 9.55% Strongly disagree: 1.53%
3. Students' opinions of using available English listening materials outside the classroom independently	Strongly agree: 10% Agree: 41.75% Not sure: 38.00% Disagree: 9.75% Strongly disagree: 0.50%	Strongly agree: 12.05% Agree: 43.45% Not sure: 33.50% Disagree: 9.47% Strongly disagree: 1.53%

4.2.1.3 Results of Paired samples t-test of learner autonomy in both EG1 & EG2

Paired sample t-test was conducted in this section to compare the students' reflections of the autonomous listening comprehension for two experimental groups before and after the experiment. As for EG1, the SPSS results in Table 4.11 showed that there was a significantly different before and after the experiment (p= .016, t (29)= -3.687). In other words, after 10 weeks intervention, students' sense of learner autonomy in EG1 was significantly improved.

As for EG2, the SPSS results presented that a statistically significant

difference existed in the mean score between the pre-experiment and the post-experiment regarding the learner autonomy, because the p value was .021 (t (29) = -4.431), which was less than 0.05. This is to say that the students in EG2 also had improved their sense of learner autonomy significantly after the 10-week treatment.

Table 4.11 Results of Paired samples t-test of learner autonomy in EG1 & EG2

| Groups | Before experiment & After experiment | | t | df | Sig. (2-tailed) |
	Mean	S.D			
EG1	-2.58	-2.876	-3.687	29	.016
EG2	-3.48	-3.125	-4.431	29	.021

4.2.2 Data from the students' semi-structured interview

According to AMHSA (2010) in the Appendix O, 19 students in two experimental groups were randomly selected to participate in the semi-structured interview after the experiment to investigate the students' opinions of the learner autonomy.

In terms of the general sense of the English listening course in the experiment, all interviewees believed that the experiment was effective in the improvement of their English listening learning. Of the 19 interviewees, 13 respondents believed that learning English listening comprehension autonomously was very useful for them. However, 6 respondents believed that this method was somewhat useful for the development of autonomous learning ability, and they pointed out their English listening comprehension made a great progress after the experiment. Besides, 4 interviewees had

reported that it was convenient to use computer technologies when learning autonomous listening comprehension.

Respondents also expressed their views on the feelings of learner autonomy. For example, St.3 said, "The course is very interesting. I can arrange my own time to study, so that I can make full use of my leisure time and I like it very much." St .7 reported that her English listening comprehension was poor. It was difficult to keep up with the speed of the whole class; sometimes even if there was a place that she did not understand, she was embarrassed to ask. Compared with the traditional method, she was very relaxed and confident in the autonomous listening comprehension course.

Additionally, St.11 pointed out that this method was very useful. Before the experiment, he said that his self-control ability was poor. It may be difficult to keep on practicing listening comprehension on his own, but later he thought that the course was very interesting, and his attention was very concentrated during the listening process. In addition, most of the respondents expressed their willingness of continuous learning this course in the future. Also, they said that the learner autonomy gave them some new inspiration to learn other subjects or other skills.

Besides, St.4 said, "I follow the task the teacher gives to me before, while I did not expect that I could study on my own according to my own learning style, and made great progress. This surprised me and made me so excited after the experiment." St.12 expressed that in order to satisfy most of classmates when practicing listening

comprehension in a traditional classroom, the listening material sometimes had to be

played many times, although she had mastered all the contents. On the contrary, this

course saved her time, which was also very helpful for her learning schedule.

When asked whether there were any suggestions for this experiment, some

students made comments positively. St.6 suggested that, "in the section of topic

discussion, I hope more students can make comments positively, not just only few

people." Additionally, as for the section of feedback and discussion, St.10 said, "I am

very grateful to my friends for giving me feedback when I have problems in the process

of listening comprehension, but I sometimes wait for a while, which makes me a bit

confused and upset at that time because some feedbacks are not timely." In summary, it

is clear that most of the students thought that their independent learning ability was

greatly improved after the experiment.

4.2.3 Data from the teacher's semi-structured interview

The semi-structured interview concerning opinions of teaching English

listening comprehension was conducted to the teacher who took care of the experiment

and was responsible to the control group. Generally speaking, she thought it was very

effective and helpful to her English listening teaching to some extent. As for the role of

the learner autonomy in the experiment, she mentioned that high school students face

great pressure of the college entrance examination. Due to limited time in class, she had

to ignore English listening comprehension part concerning other skills with larger

proportion (like grammar, vocabulary and writing, etc.). However, learning autonomous listening comprehension with computer technologies may fix this problem efficiently. It was convenient that students could control their device and went back to review contents until they understood it, and thereby developing students' sense of learner autonomy, which was difficult to achieve in traditional teaching.

She also expressed her worries about if there was too much freedom in their study, they might be out of control, particularly students with poor proficiency of listening comprehension. She gave some suggestions on this issue, such as giving students structure of what they are going to listen to before the class begins; giving students clear goals, like what they need to achieve and what need to be done, etc. At the same time, she added, "Giving students some timely appropriate feedback might be a good way to improve students' English listening comprehension skills and their sense of learner autonomy."

4.2.4 Data from student diary

Students in three groups were required to keep their study diaries and had been told what were involved in the diary before the experiment. Detailed information was mentioned in section 3.5.3 in chapter 3.

4.2.4.1 Student diaries in two experimental groups

64 notebooks were collected from two experimental groups after the treatment. The content analysis of student diary was categorized into the length of time,

learning place, students' feelings towards learning resources and the listening website that they use, etc. (see section 3.5.3). According to the diary report, time length the students spent in two experimental groups was about 4 hours per week as they were required before the experiment. Their study time varied from morning to evening. Most students reported that they often practice listening comprehension before going to bed at night. Also, information was shown that the time they practiced listening comprehension had increased than before. One student pointed out, "I used to waste time playing with my mobile phone before going to bed every night, but now I try to keep on learning listening comprehension with my mobile phone before going to bed at night. I have a great sense of achievement." In terms of places of study, students studied in more places than before, which were in dormitory, home, library, classroom, etc. They added that these places made them feel more relaxed and confident when practicing their listening.

Additionally, most of the students' expressions included "fun", "innovative", "pleasant", etc. As one participant wrote, "I really like this listening comprehension course, because it is very interesting to me when I listen." Another participant put it, "As for unit 3, I feel a bit difficult at the beginning, because it is quite new for me. However, I still feel confident when doing the tasks." One participant also wrote, "When I feel bored or upset, I'd like to practice listening comprehension, which make me calm down, and make me more relaxed. I like to learn in this way."

As for the section of making comments, most of the students wrote that they could easily and without feelings of embarrassment to express their opinions and comments. Besides, they also felt "easy" to upload their topics and opinions. However, three students felt "somewhat easy" when expressing their opinions and comments.

As for the sense of learner autonomy in learning listening comprehension, most of the students wrote that they felt satisfied, as they mentioned in the interview. One student recorded that he felt a bit unfamiliar when he had just used it in the first few time, but after that, he felt relaxed and enjoyed when completing several units. Moreover, four participants reported that this course together learner autonomy was quite helpful and meaningful for their English listening learning, and they strongly believed that this alternative approach could develop their sense of learner autonomy.

Beside, they recorded that they could learn how people spoke English as native language communicates in daily life. One student wrote, "When I do English listening comprehension task, I have enough time to take notes and write down some common expressions, so as to help me speak better. I don't have to spend extra time looking for oral materials. It is very effective for me, and I really like it."

4.2.4.2 Student diaries in the control group

There were 30 notebooks collected from the control group after the

experiment. According to the report in the diary, the total duration of listening comprehension was around 4.5 hours per week, which was slightly longer than the time reported by the students in the experimental groups. In addition, the students reported that they would review the content of what they have learned after class. Like the experimental groups, their study time also varied from early morning to late night. Most students wrote that they tended to practice their listening comprehension around 5 p.m.

Their study place was in the classroom. Students used the computer provided in the classroom to play the listening materials. The difference from the experimental groups was that the students in the control group were not so free to use the device to practice listening. The listening materials they used came from English textbook (as mentioned in section 3.2.1 in chapter 3).

As for the process of English listening learning, most of students summarized as "boring", "fixed", etc. One participant wrote, "Although the materials are very boring, I have to continue to practice because I need to prepare for the college entrance examination." Some students wrote that they were willing to learn English listening on their own, rather than playing records for practicing listening comprehension in the classroom. Most students find it difficult to learn English using the traditional English listening experience. They claimed that they could not make great progress even they practice very hard.

Moreover, some students reported that they felt nervous and stressed

when they did tasks. One student wrote, "When listening activities start, I may encounter difficulties, but I feel embarrassed to bother other classmates, and thus I had to continue. Unfortunately, after the listening activity, I have forgotten what specific part I have difficulties, which makes me feel frustrated."

4.3 Students' reflections on advance organizers

This section illustrated that exploration of students' opinions towards the advance organizers, which tends to find out the data to answer the research question 4. It includes a written questionnaire, semi-structured interview and the diary.

4.3.1 Data from the written questionnaire

This questionnaire (see Appendix B) was conducted to EG1 before and after the 10-week treatment. There was a 5-point Likert-scale provided to identify the questions based on their own feelings, including strongly disagree, disagree, not sure, agree and strongly agree.

4.3.1.1 Results of advance organizers in EG1

The results from the questionnaire were categorized in Table 4.12 that, before the experiment, 9.64% students strongly agreed that the pre-listening with advance organizers was useful for their English listening comprehension, 41.50% agree, 35.00% not sure,10.50% disagree and 3.36% strongly disagree. However, after the experiment, 8.90% percentage of students strongly agreed that pre-listening with

advance organizers did improve their English listening comprehension, 46.05% agree, 33.07% not sure, 9.98% disagree and 1.92% strongly disagree.

Moreover, as for using the graphic form, the chart and the table and the introduction of topic before the task starts, 10.93% students strongly agreed that using these to preview the content towards what the students will learn were effective on the improvement of English listening comprehension, 39.07% strongly agree, 36.00% not sure, 10.17% disagree and 3.83% strongly disagree before the experiment. However, after the experiment, 10.68% students strongly agreed with the idea of using these materials as advance organizers to improve their English listening comprehension, 44.50% strongly agree, 33.07% not sure, 10.00% disagree and 1.75% strongly disagree.

Furthermore, before the experiment, 10.25% students strongly agreed that using strategy of advance organizers could develop their ability of note-taking and gist-summarizing, and increase their confidence of English listening effectively, 43.50% agree, 34.19% not sure, 10.98% disagree and 1.08% strongly disagree. On the contrary, after the experiment, 11.90% percentage of students strongly agreed employing the strategy of advance organizers could develop their ability of note-taking and gist-summarizing, and improve their English listening comprehension skills effectively, 46.00% agree, 31.10% not sure, 9.75% disagree and 1.25% strongly disagree. Therefore, it was clear that with a high percentage of agreement, most students were quite satisfied with the advance organizers for their English listening learning.

Table 4.12 Results of advance organizers for EG1

EG1	Before the experiment	After the experiment
1. Students' perceptions of pre-listening with advance organizers and improvement of English listening comprehension together with advance organizers	Strongly agree: 9.64% Agree: 41.50% Not sure: 35.00% Disagree: 10.50% Strongly disagree: 3.36%	Strongly agree: 8.98% Agree: 46.05% Not sure: 33.07% Disagree: 9.98% Strongly disagree: 1.92%
2. Students' perceptions of using the graphic form, the chart and the table and providing the introduction of the topic and the goal before the task starts	Strongly agree: 10.93% Agree: 39.07% Not sure: 36.00% Disagree: 10.17% Strongly disagree: 3.83%	Strongly agree: 10.68% Agree: 44.50% Not sure: 33.07% Disagree: 10.00% Strongly disagree: 1.75%
3. Students' perceptions of advance organizers towards students' ability of note-taking and gist-summarizing	Strongly agree: 10.25% Agree: 43.50% Not sure: 34.19% Disagree: 10.98% Strongly disagree: 1.08%	Strongly agree: 11.90% Agree: 46.00% Not sure: 31.10% Disagree: 9.75% Strongly disagree: 1.25%

4.3.1.2 Results of paired samples t-test of advance organizers in EG1

Paired sample t-test was used to compare the states of students of EG1 using the advance organizers before and after the experiment. As shown in Table 4.13, the results of SPSS indicated that there was a statistically difference before and after the experiment in EG1 in terms of using the strategy of advance organizers ($p = .024$, $t(29) = -3.563$). That is, after 10 weeks of intervention, it indicates that the strategy of advance organizers might have made more students become confident in their English listening learning.

Table 4.13 Results of Paired samples t-test of advance organizers in EG1

Groups	Before experiment & After experiment		t	df	Sig. (2-tailed)
	Mean	S.D			
EG1	-2.43	-2.674	-3.563	29	.024

4.3.2 Data from the students' semi-structured interview

Detailed information on students' opinions of advance organizers came from students' semi-structured interview. 15 students from EG1 participated in the semi-structured interview after the experiment. When students were asked whether the support of advance organizers had any effect on their English listening comprehension, most of the students replied positively. They pointed out that the intervention was helpful for their English listening learning.

Among the 15 respondents, 11 respondents thought it was necessary to add the part of pre-listening before the listening activities started which gave certain kinds of knowledge necessary for them to understand. However, 4 respondents thought it was somewhat useful because they did not have a pre-listening part before in traditional listening learning and thought it was a bit unfamiliar to them.

Additionally, one interviewee said that, "In the past, I was required to listen to the record, and had no idea on what would be about next. However, I like to learn this kind of new listening lesson. The materials including voices, charts, or pictures provided during the pre-listening, enable me to make preparation for the listening task." Another interviewee said, "I am very satisfied with this approach. It gives me enough

time to memorize new knowledge with the help of advance organizers. For example, before I learn the unit 7 Learning efficiently, I've been familiar with some information provided on the forum, and I also grasp the introduction provided from pre-listening in advance. When I do the while-listening tasks later, I feel very confident and relaxed. It makes me very impressed."

Moreover, many students have mentioned that advance organizers gave them hints about previous knowledge, and they said that it was easy to link new information to their existing knowledge. Thus, when asked whether the advance organizers were helpful for English listening comprehension, many interviewees mentioned these materials increased their sense of understanding before they started to listen. One interviewee said, "I feel nervous when I used to practice listening in the past. Now I can note down some key words and phrases during the pre-listening. Also, I do not feel so nervous any more. It is a big change for me."

Another interviewee said, "The new listening course breaks the listening activities into small steps, such as pre-listening, while-listening and post-listening. It attracts my attention, compared with the listening exercises in the previous course. In short, after interviewing EG1, most of the students were very satisfied with the arrangement of the advance organizers in the exercise of English listening learning.

4.3.3 Data from the teacher's semi-structured interview

When asked about the opinions towards advance organizers, the teacher

believed that it could help students improve their English listening comprehension skills. She agreed that the implement of advance organizers could link what students learned to what they will learn, which makes them feel relaxed and confident when they start a lesson.

She also mentioned that a similar teaching strategy was used when she taught other language skill exercises, such as reading and writing. However, due to insufficient time in class, the pre-listening part was often omitted. She said, "Most of the students want to be prepared with some short materials before doing the listening task, which makes them feel relaxed." In addition, the teacher also added that these also provided students with an integrated summary. Students become aware of the content and structure of the topic so as to understand the listening content.

Finally, she gave some suggestions about the arrangement of each part of the listening activity. She said that, "The materials of traditional listening practice is too long to make students motivated and patient. Thus, the materials should not be very long."

4.3.4 Data from student diary in EG1

In the student's diary of EG1, they recorded their satisfaction with the advance organizers in the pre-listening. Most of the students described "easy" and "meaningful" when they were ready to listen to the materials. One student particularly wrote, "In pre-listening activities, ⋯ some words and phrases that I am familiar

with; ⋯connect new expressions with these words and phrases. It enables me to grasp new point very quickly,⋯" Another student wrote, "When I upload my idea to the forum, I also use the materials provided in advance organizers, which gives me inspiration for summarizing the topic." All in all, most students expressed these materials provided in the pre-listening stage helped them better understand the listening tasks.

4.4 Answers to research questions

4.4.1 Answer and discussion regarding research question 1:

Are there any significant differences in the development of English listening comprehension skills of Chinese high school students between Experimental Group 1, Experimental Group 2 and the Control Group? If so in what ways?

As mentioned in section 4.1.2, the answer was summarized in three parts. First, as for EG1, the results of the data analysis showed that there was no statistically significant difference between the pretest and the posttest. That is to say, the students in EG1 did not have any statistically significant improvement in the examination of English listening comprehension after the experiment.

As for EG2, the results illustrated that there existed statistically significant difference between the pretest and the posttest in EG2 regarding the English listening learning. In other words, the students in EG2 did have great progress in the achievement

of English listening comprehension.

As for CG after 10 weeks of the experiment, there was statistically significant difference between the pretest and the posttest. However, from the students' mean scores, it was clearly shown that the traditional method had a negative impact on students' performance of English listening learning.

Besides mentioned above in section 4.2.1, the findings revealed that there was statistically significant difference regarding the sense of learner autonomy. It also can be said that the students in two experimental groups had improved their sense of learner autonomy significantly after the 10-week treatment.

To conclude, the intervention of the autonomous English listening comprehension was effective for Chinese high school students. It did help them improve English listening comprehension and provide students with the opportunity to proceed in whatever way students like, a free learning space to a certain extent and cultivated their independent ability gradually in English listening learning. Besides, the students benefit from the listening materials, the time and the pace provided in the listening website. It also supports students with the learner autonomy, which not only helps students to learn English listening comprehension skills, but also stimulates their motivation to learn English. Last but not the least, it helps the students carry out the chosen tasks when they listen to English in the listening website.

4.4.2 Answer and discussion regarding research question 2:

When comparing the performances of Experimental Group 1 and Experimental Group 2, does the use of advance organizers significantly improve the development of listening comprehension skills of Chinese high school students? If so in what ways?

As illustrated in section 4.1.2.2, it was clear to illustrate statistically significant difference in the mean scores of EG1 and EG2 before and after the experiment, respectively. As for the results of EG1, there was no statistically significant difference between the pretest and posttest. Thus, students employed advance organizers had no statistically significant improvement in their performance of autonomous English listening comprehension after the 10-week intervention. As for the results of EG2, there existed statistically significant difference before and after the experiment. In other words, students without the use of advance organizers significantly improved in their performance of autonomous English listening comprehension.

Although students felt more enjoyable with the use of advance organizers in the English listening exercise, it could not help students improve their achievement of English listening comprehension. Thus, the approach with the use of advance organizers in this study is not effective for students' performance of autonomous English listening comprehension and it should not be employed in further English listening teaching and listening for students in this groups.

4.4.3 Answer and discussion regarding research question 3:

What are the Chinese high school students' opinions of the teaching approaches used in Experimental Group 1, Experimental Group 2 and the Control Group?

The students in two experimental groups had a willingness to use the autonomous listening comprehension approach under a CALL environment developed in this experiment to help improve their ability to learn to listen in English. As for EG1, the students felt that learning English listening comprehension autonomously was very useful for them and made them more confident and relaxed. The students in EG2 claimed that their ability in English listening comprehension had improved significantly after the 10-week intervention. As for CG, the students expressed that the traditional method did not help them go back to review contents easily when they listen.

In addition, this alternative teaching approach could give the students' opportunities to set learning time and place independently, and to control their own technological devices, such as the computer, the mobile phones, etc. during the process of doing listening activities. These devices were given to students control over the speed at which a speaker speaks and to go back over sections they needed to hear again as often as they believed important.

Besides, their sense of learner autonomy in two experimental groups had been improved after the experiment in general. The great difference compared with the

traditional methods was that students do not need to follow the tasks arranged by the teacher step by step without freedom as in the past, while they utilized every opportunity to set the plan and complete the tasks on their own during the experiment. Finally, the data obtained from the semi-structured interviews and student diaries revealed that development of students' autonomous listening not only supported students to become more aware of the initiative of English learning, but strengthened students' learning efficiency and self-confidence.

4.4.4 Answer and discussion regarding research question 4:

What are the Chinese high school students' opinions of the use of advance organizers for improving their English listening comprehension skills?

All findings illustrated above clearly answer research question 4. Most students in EG1 had positive attitudes towards advance organizers, as they thought this strategy was very important to their preparation for what they will learn. It provides the students with certain materials like pictures and graphics related to the topics, which help the students better understand topics before they listen. It was also quite convenient for them to learn new units and to review past units. Moreover, according to students' reflection, the use of advance organizers facilitated them with a new inspiration in the exercise of learning other subjects or other skills to some extent. However, in the test of English listening comprehension, the findings in this study illustrated that the use of advance organizers could not help students' performance of English listening learning efficiently.

In addition, according to the teacher's reflection on the use of advance organizers, she supported the idea that it was essential to provide students with certain materials before starting listening tasks, which could familiarize themselves with the topic to be learned in the exercise. It might bring more inspiration to students and teachers in upcoming EFL learning and teaching. However, it is clear that compared with listening lessons without advance organizers, the use of it did not work as much the improvement of students' English listening comprehension. It should be considered in an appropriate way.

4.5 Summary

This chapter answered the 4 research questions and showed the results of the study. The important findings of the statistical analysis revealed that EG2 increasingly improved their English listening comprehension skills than EG1 and CG after the intervention. Moreover, the findings of the questionnaire, semi-structured interviews and diaries indicated that students in the two experimental groups have a positive attitude on the treatment of autonomous listening than those in the control group using the traditional English listening course. Generally speaking, both students and the teacher were satisfied with the experiment in strengthening students' ability of autonomous English listening comprehension. The next chapter as the final chapter will discuss conclusions, implications and recommendations regarding the present study provided.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND

RECOMMENDATIONS

This chapter concludes the dissertation. It involves four sections. Section one provides an overview of the present study. Section two explores the pedagogic implications of the study in EFL teaching and learning in Chinese contexts. Section three considers limitations of the study. Finally, section four offers recommendations for further research in English listening learning.

5.1 Summary of the study

Considering the structure of the experiment in the current study, firstly, to achieve the purpose of the experiment, the study focused on three issues: comparing the use of autonomous listening comprehension approach on Chinese high school students between two experimental groups and the control group; comparing the performances of EG1 (the experimental group 1 with advance organizers) and EG2 (the experimental group 2 without advance organizers); and the students' and the teacher's opinions of the approach of autonomous English listening comprehension. A total of 94 first year high school students participated in the experiment. They were divided into two

experimental groups and one control group. The duration of the intervention lasted for 10 weeks.

Besides, based on characteristics of using the listening website provided in the experiment, the way has the students who learn to listen to English by following their teacher step by step shifted towards autonomous learning which requires students to learn by themselves. A great number of activities rely on the Internet, together with a variety of input of listening materials, like electronic audio and video texts. There is an arrangement for ongoing courses in the listening website, which help students understand these materials as much as possible. As for the content in the exercise in the listening website, small stages were designed to help students set a clear goal and reduce the pressure on students. These included pre-listening, while-listening and post-listening stage. Also, these designs in this experiment break certain obstacles (eg. time, place, or costs etc.) of the traditional classroom in order to further develop students' English listening comprehension and their independent learning.

In addition, as for the role of the students and the teacher in the program, students play a central role when completing listening comprehension tasks. The teacher in this approach was a facilitator, a guide to provide experience and tasks in which students can be successful in the improvement of English listening comprehension skills. Also, students were given the opportunity to consider the various problems they encountered independently and to make them become better listeners.

Furthermore, as for the English listening tasks in the experiment, students in EG1 were required to complete a series of tasks including: 1. the tasks of pre-listening, while-listening and post-listening; 2. group discussions; 3. weekly diary report. Simultaneously, students in EG2 needed to complete: 1. the same tasks of while-listening and post-listening as students in EG1 (no pre-listening stage); 2. group discussions; 3. weekly diary report. No teacher was involved in EG1 and EG2. To the other hand, CG had English listening lessons in the conventional way of re-listening process (mentioned in section 3.1.1). The students sought to improve their listening in the classroom according to the teacher's plan and instructions.

In summary, the study explored the effects of using a web-based English listening course based on schema theory so as to improve students' English listening comprehension and sense of learner autonomy in Chinese contexts. It is clear that students in EG2 (the second experimental group without advance organizers) had made great progress; students in EG1 (the first experimental group with advance organizers) did not make any statistically significant progress though the mean score of the group increased substantially; and students' achievement in CG (the control group) lost ground significantly. Although the EG1 students enjoyed the advance organizers used in the experiment, these actually did not enable students to develop their English listening comprehension outside of the listening comprehension exercise specifically in the examination and in real situations. Therefore, the approach with advance organizer

is not significantly effective for developing students' English listening comprehension after the experiment. At the same time, the traditional method makes students progressively worse. Its use should be stopped.

5.2 Pedagogic implications

The findings of the present study firstly illustrate the importance of autonomous English listening learning of high school students in Chinese context under this approach. During the process of learning to listen in English, students will actively participate in listening tasks independently and they will complete the assignment of their English listening autonomously. As Oxford (1990) stressed, self-direction is particularly essential for improving language learning. Thus, it is necessary for the teacher and the students to understand how to help the students minimize the pressure on comprehending the listening materials as much as possible, and facilitate the students to become more independent and successful learners. The current study provides the evidence that this autonomous listening approach could be effective for Chinese high school students and could offers a viable alternative approach to the traditional teaching of English listening.

Furthermore, the present study gives more focus to the role of the students. The new English curriculum reform of high schools in China make emphasis of how to promote the students' overall language learning ability, like the ability to communicate

and self-study. It is no longer aimed only for language skills through teacher-centered instruction, but expanded to developing students' ability of comprehension and critical thinking through the teacher-less instruction. As Holec (1981, p.3) also stated, "preparing learners to direct their own learning so that they may gradually move from a state of dependence on a teacher to the greatest degree of independence or autonomy possible in a particular set of circumstances". There is an obvious change considering today's education situations in Chinese contexts. The students' role has shifted from a passive receiver to an active participant without being restricted by their teachers and classrooms. The autonomous approach provided in this study not only could arouse students' interest in language learning, help them form good habits and integrate moral education, but also develop their motivation and confidence in further EFL and life-long learning. Thus, it should be employed.

Moreover, the current study reveals the importance of the teacher's training programs in EFL education in China. As we all know, for any educational change, the teacher is the crucial factor since they provide innovation for implementing the new approach. However, regarding the new curriculum, EFL learning is no longer a system of linguistic knowledge but a means for communication. In EFL teaching many teachers feel painful and stressful in coping with this challenge. Therefore, in order to change this situation, English teachers are expected to change in many ways. First, teachers are expected to change from the traditional role of the controller to the facilitator. Second,

teachers are expected to focus more than just EFL knowledge and skills, but they should also consider the students' affective needs, and develop their ability of independent learning and critical thinking. Last but not least, teachers are expected to develop their professional competence like being qualified for education profession, and equipped with adequately teaching and learning skills and strategies, knowledge, and armed with patience and responsibility in their fields.

In addition, as for the use of advance organizers, findings from this study show that the use of advance organizers did not work for passing examinations and further improving their proficiency of English listening comprehension. Therefore, the teacher should have an appropriate understanding of the use of advance organizers, since it is not true that giving students more prompts means better comprehension. This result suggests that the use of advance organizers should be taken cautiously into consideration.

Besides, findings from the current study imply the need for web-based learning programs for EFL education in China. To fulfill learners' development of listening skills, this experiment had shown that a Web-based program in English listening teaching and learning is desirable. Learners can gradually adapt and make use of this autonomous learning approach as an essential part of daily listening practice. The resources of abundant online multimedia in this experiment, such as sound, texts, and images were integrated into the process of learning to listen, which could be beneficial for students

in a long-term manner. Meanwhile, these online resources break through the limitations of traditional books and help students complete listening tasks with ease, and also help them understand more deeply what they have learned. Besides, the English listening course in this study provides students with personalized learning and learning efficiency. Its listening contents and learning progress is based on the students' needs and interest. Therefore, considering today's technological global environment, the researcher argues that the web-based program in this study would be necessary.

Additionally, the personal website would be desirable since the experiment in the current study revealed to be more efficient with statistically significant results. The use of personal website allows participants to learn by themselves and reduces educators' time normally used in the classroom. The listening materials such as audio files and pictures provided in the personal website enables learners access to information repetitively, suit their needs and interest. Last but not the least, the personal website also allows the learners to listen simulated real-life scenarios repeated so that they may feel more confident once they encounter the same situations.

Finally, this approach is particularly relevant in the COVID and post COVID eras. Since the pandemic of the coronavirus disease (COVID-19), it has led to the massive closure of face-to-face teaching and learning in the classroom in China in order to avoid the spread of the virus. Therefore, the major effort in this approach makes it possible to achieve the aim of supporting students' distance learning under the CALL environment.

Students could make use of the personal website through setting goals of self-paced learning. In this case, it implies development of distance learning education through a variety of learning and teaching platforms such as with the use of technology.

5.3 Limitations of the study

There are some limitations to this study. First, the participants in this study were 94 first-year high school in Zhuchang middle school in China with several years of English study as samples in this experiment. The population is EFL high school students in Zhuchang middle school in Guizhou province in China. It is not large enough and cannot represent high school students in other provinces in China. Thus the findings of this study should be approached with caution.

Second, the selection of participants was based on convenience and availability. The samples were not fully randomized and the two experimental groups and one control group were conducted on the basis of 3 intact classes. The numbers of male (59) and female (35) were not equal. The unequal numbers of male and female students is a limitation of the experiment as it is the sampling.

Third, the listening comprehension course lasted 10 weeks. Since the participants selected in the experiment had never been trained in the listening course before, they were relatively new to learning to listen. The 10 weeks of listening learning might not be long enough for them.

5.4 Recommendations for further research

After discussing limitations, further research recommendations on listening comprehension approach for EFL high school students are identified in the following section.

First, the current research attempted to improve high school students' listening comprehension skills in Chinese contexts. It was noticeable that large-scale replication research would be necessary. In addition, it brought some inspiration on the basis of the guidance of listening learning approach to enhance other language skills, like speaking, reading and writing skills.

Second, this study targeted at helping the first year students in high school of English listening comprehension. Clearly, this alternative approach in the current study would be necessary for other grades such as second and third year high school students in improving Chinese high school students English listening comprehension skills. It would be desirable for learners who learn English as their foreign language outside China. Meanwhile, some refinements and balances like learning environment, learning duration and learning materials and gender should be taken into consideration in EFL teaching and learning.

Third, the study was a preliminary attempt to help Chinese high school student with the use of advance organizers on different levels of students. Thus, the current study did not explore in detail the effects of different forms of advance organizers in

students' autonomous listening learning. It is hoped to be an inspiration for EFL researchers to explore the effects of various forms of advance organizers in developing students' EFL teaching and learning.

Fourth, the study provided students' opportunity with autonomous learning through a set of learning assignments. However, in order to avoid being out of control in students' learning process, some aspects concerning levels of students independent ability and the role of teachers are considered in future research.

These remarks bring the thesis to a conclusion. The current research questions have been answered. Pedagogically, the study has also made some suggestions for potential teaching issues in long-term EFL learning. It is hoped that the study provides some contribution to the teaching and learning of listening comprehension skills for EFL students.

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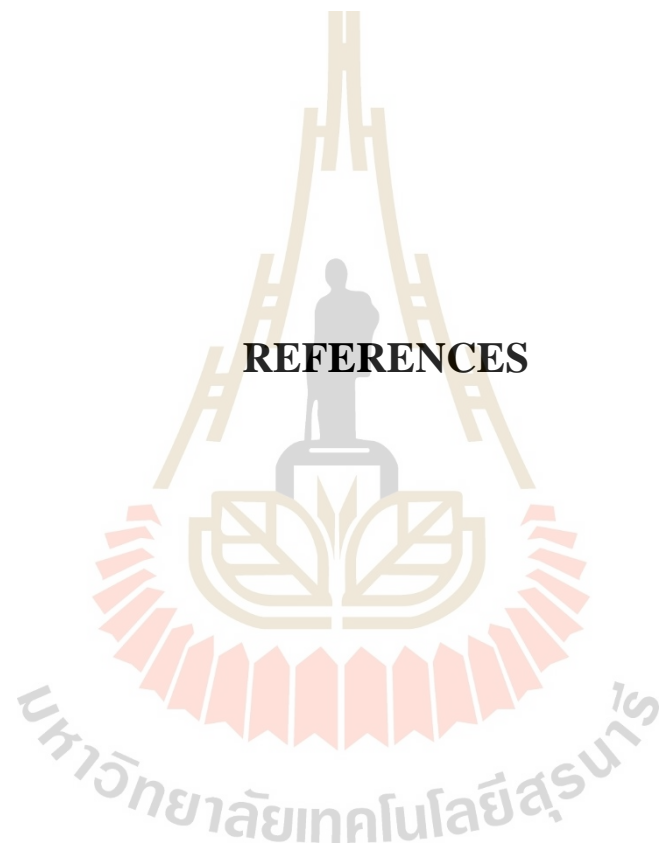
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APPENDICES
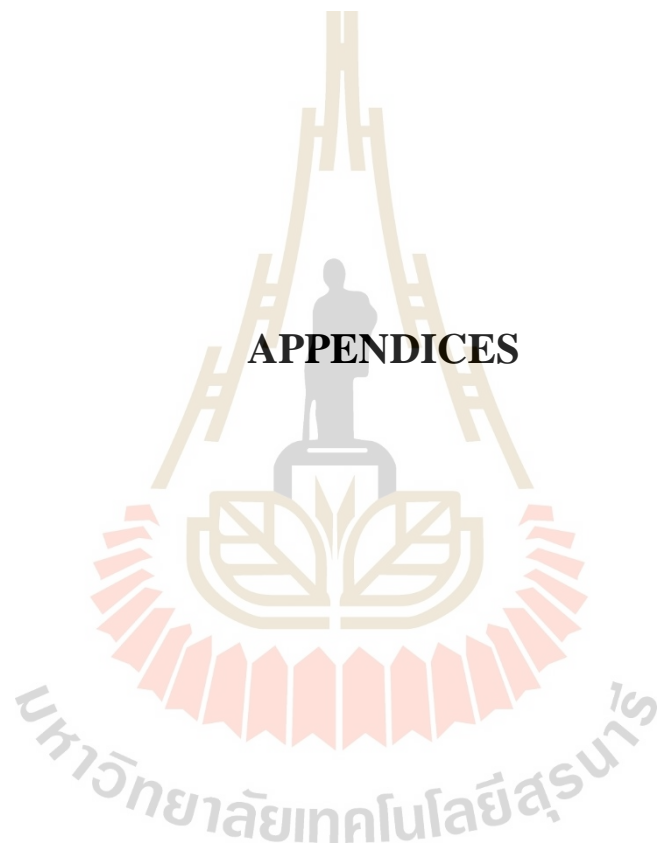
APPENDIX A

Questionnaire on Students' Perceptions of Learner Autonomy Via the Listening Website

Part I Personal Information

Gender	☐ Male	☐ Female	
Age	☐ Below 16	☐ 16-19	☐ 19& up
Level	☐ Year One	☐ Year Two	☐ Year Three
Nationality	☐ Han	☐ Buyi	☐ Miao	☐ Other
Year of EFL study	☐ 0-3 years	☐ 0-3 years	☐ 7 years & up
Time spent per week	☐ 5 hours	☐10 hours	☐ 15 hours

Part II Students' perceptions of learner autonomy

Directions: This questionnaire is designed to investigate information about your opinions of learner autonomy to improve English listening comprehension via the listening website. Please feel free to read each statement carefully and tick (√) the number, which suits to your opinions. The number 1-5 represents: 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 agree; 5 = strongly agree. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

S.N.	Perceptions on learner autonomy	Circle the number				
1	I think I have the ability to learn English listening comprehension well through the listening website.	1	2	3	4	5
2	I can set goals and make decisions of my listening learning via the listening website.	1	2	3	4	5
3	It is convenience for me to put newly learned English listening training into practice.	1	2	3	4	5
4	I'm able to make good use of my free time in studying English listening comprehension through online device.	1	2	3	4	5
5	I use audio-visual materials to develop my ability of English listening comprehension on my own.	1	2	3	4	5
6	I like to study on my own, such as practicing my English listening comprehension.	1	2	3	4	5
7	I keep on my learning schedule during the process of completing a certain listening learning task.	1	2	3	4	5
8	I can review the listening contents I have learned timely.	1	2	3	4	5
9	Outside of assignments given by the teacher, I often make a clear plan for listening learning on my own.	1	2	3	4	5
10	I use available listening learning resources such as the library, internet, dictionaries, etc. to improve my English listening comprehension on my own.	1	2	3	4	5

APPENDIX B

Questionnaire on Students' Perceptions of Learner Autonomy Via the listening website

关于用网站进行自主学习的问卷调查

第一部分 个人信息

性别	☐ 男	☐ 女	
年龄	☐ 16 岁以下	☐ 16-19 岁	☐ 19 岁以上
年级	☐ 高一	☐ 高二	☐ 高三
民族	☐ 汉族	☐ **布依族**	☐ 苗族 ☐ 其他
学习时间	☐ 0-3 年	☐ 4- 7 年	☐ 7 年以上
每周学习听力时间	☐ 5 小时	☐ 10 小时	☐ 15 小时

第二部分 学生对于利用**听力网站**进行自主**学**习英语听力**理解的**观点

说明: **本**问卷调查旨在收集你对于通过**听力网站上**进行自主**学**习英语听力**理解的**观点. 请认真阅读问卷的题项并在代表你观点的题项前打勾 (√) **数字 1 到 5 分**别代表以下答案: 1= **非常不同意**; 2= **不同意**; 3 = **不确定**; 4 = **同意**; 5 = **非常同意**. 调查问卷中您的回复将予以保密。

谢谢合作。

题项	学生观点描述	选择最佳答案				
1	我认为我有能力通过这个英语听力网站来提高我的自主听力理解的学习.	1	2	3	4	5
2	通过这个听力网站, 我为自己的听力学习设定目标。	1	2	3	4	5
3	我能够将新学过的英语听力训练付诸实践。	1	2	3	4	5
4	我能利用自己的空闲时间通过在线设备来学习英语听力理解。	1	2	3	4	5
5	我利用视频,音频等材料来提高自己的英语听力理解能力。	1	2	3	4	5
6	我可以独立学习，例如在练习英语听力理解时。	1	2	3	4	5
7	在完成某项英语听力学习任务的过程中，我遵守了我的预定学习计划。	1	2	3	4	5
8	在完成英语听力理解学习任务的过程中，我经常检查并纠正对以前学过的材料的理解。	1	2	3	4	5
9	除了老师布置的任务外，我有一个明确的自学计划。	1	2	3	4	5
10	我可以使用课堂以外的可用的英语听力理解的学习资源，如图书馆，互联网，词典等，以提高我自己的英语听力能力。	1	2	3	4	5

APPENDIX C

IOC Analysis for Students' Perceptions of Learner Autonomy

Items	Experts			Result of analysis
	1	**2**	**3**	
Q1	+1	+1	+1	√
Q2	0	0	0	×
Q3	+1	+1	+1	√
Q4	+1	+1	+1	√
Q5	+1	+1	+1	√
Q6	+1	+1	+1	√
Q7	+1	+1	+1	√
Q8	+1	+1	+1	√
Q9	+1	+1	+1	√
Q10	+1	0	+1	×
Total	9	8	9	√

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective 3. 0 = uncertain about this item

Result of IOC:

(IOC =□R /N)

Item number: 10

R =9+8 +9 =26 (Scores given by experts)

N = 3 (Number of experts)

IOC = 26/3 =8.67

Percentage: 8.67/10×100% = 86.7%

The table above shows that the analysis result of IOC is 8.67, and the percentage is 86.7%, which is higher than 80%. Therefore, the items are suitable for adoption a trial questionnaire.

APPENDIX D

The Questionnaire on Students' Perceptions of Use of An Advance Organizer for English listening learning (EG1)

Part I Personal Information

Gender	☐ Male	☐ Female		
Age	☐ Below 16	☐ 16-19	☐ 19 & up	
Level	☐ Year One	☐ Year Two	☐ Year Three	
Nationality	☐ Han	☐ Buyi	☐ Miao	☐ Other
Year of EFL study	☐ 0-3 years	☐ 3-7 years	☐ 7 years & up	
Time spent per week	☐ 5 hours	☐ 10 hours	☐ 15 hours	

Part II Students' perceptions of learner autonomy

Directions: This questionnaire is designed to investigate your opinions of the use of an advance organizer during the intervention. Please feel free to read each statement carefully and tick (√) the number, which suit to your opinions. The number 1-5 represents: 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 agree; 5 = strongly agree. The questionnaire that you response will be kept confidential

Thank you for your cooperation.

S.N.	Perceptions on use of an advance organizer	Circle the number				
1	I like to use graphic form to preview my English learning.	1	2	3	4	5
2	I can understand better if there have pictures in learning process.	1	2	3	4	5
3	My English listening ability improved as a result of using charts and tables.	1	2	3	4	5
4	The topics and goals given before class are necessary for my study.	1	2	3	4	5
5	I can develop my English ability by use of graphic organizer.	1	2	3	4	5
6	The interpretation of pictures about the topic is very interesting and meaningful.	1	2	3	4	5
7	It's easy for me to summarize the gist of listening contents.	1	2	3	4	5
8	I make good notes when I use an advance organizer.	1	2	3	4	5
9	I think I can make progress when I use an advance organizer.	1	2	3	4	5
10	I will be able to use advance organizers for English listening study in future.	1	2	3	4	5

APPENDIX E

The Questionnaire on Students' Perceptions of Use of An Advance Organizer for English listening learning (EG1) (Chinese Version)

学生关于实验中所使用的先行组织者的观点调查问卷

第一部分 个人信息

性别	□ 男	□ 女		
年龄	□ 16 岁以下	□ 16-19 岁	□ 19 岁以上	
年级	□ 高一	□ 高二	□ 高三	
民族	□ 汉族	□ 布依族	□ 苗族	□ 其他
学习时间	□ 0-3 年	□ 4- 7 年	□ 7 年以上	
每周学习听力时间	□ 5 小时	□ 10 小时	□ 15 小时	

第二部分 问卷内容

说明: 本问卷调查旨在全面了解高中生使用先行组织者对听英语听力学习的观点的调查. 请认真阅读问卷的题项并在代表你观点的题项前打勾(√)数字 1 到 5 分别代表以下答案: 1= 非常不同意; 2= 不同意; 3 = 不确定; 4 = 同意; 5 = 非常同意. 调查问卷中您的回复将予以保密。

谢谢合作。

题项	学生观点描述	选择最佳答案				
1	我喜欢用图形表格的形式来预习我的英语学习。	1	2	3	4	5
2	如果学习过程中有图片，我可以更好地理解学习内容。	1	2	3	4	5
3	使用图表可以提高我的听力水平。	1	2	3	4	5
4	课前给出的主题和目标对我的学习是有必要的。	1	2	3	4	5
5	我可以通过使用图形表格来提高我的英语概括能力。	1	2	3	4	5
6	有关主题的图片的解释是对于我的英语学习是有意义的。	1	2	3	4	5
7	我很容易对每一个单元英语学习的结论。	1	2	3	4	5
8	先行组织者的使用可以很好的帮助我做笔记。	1	2	3	4	5
9	我想我在使用先行组织者时可以取得进步。	1	2	3	4	5
10	我将会使用先行组织者在我之后的听力学习中.	1	2	3	4	5

APPENDIX F

IOC Analysis for Students' Perceptions of Use of An Advance Organizer for English listening learning (EG1)

Items	Experts			Result of analysis
	1	**2**	**3**	
Q1	+1	+1	+1	√
Q2	+1	+1	+1	√
Q3	0	+1	+1	×
Q4	+1	+1	+1	√
Q5	+1	+1	+1	√
Q6	+1	+1	+1	√
Q7	+1	0	0	×
Q8	+1	+1	+1	√
Q9	+1	+1	+1	√
Q10	+1	+1	+1	√
Total	9	9	9	√

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective 3. 0 = uncertain about this item

Result of IOC:

$(IOC = \Box R / N)$

Item number: 10

R =9+9+9=27 (Scores given by experts)

N = 3 (Number of experts)

IOC = 27/3 =9

Percentage: $9/10 \times 100\% = 90\%$

The table above shows that the analysis result of IOC is 9, and the percentage is 90%, which is higher than 80%. Therefore, the items are suitable for adoption a trial questionnaire.

APPENDIX G

A Semi-Structured Interview on Students' Perceptions of English Listening Learning

Part I Personal Information

Gender   ☐ Male   ☐ Female

Age   ☐ Below 16   ☐ 16-19   ☐ 19 & up

Level   ☐ Year One   ☐ Year Two   ☐ Year Three

Nationality   ☐ Han   ☐ Buyi   ☐ Miao   ☐ Other

Year of   ☐ 0-3 years   ☐ 3-7 years   ☐ 7 years & up
EFL study

Time spent   ☐ 5 hours   ☐ 10 hours   ☐ 15 hours
per week

Part II Interview Questions

Q1. Are the listening material and activities provided on the listening website helpful to your English listening? If so, in what ways? If not, why not?

Q2. Comparing listening materials and activities of NSEC textbook in the classroom to those learned on your own out of class, which one do you prefer? Why?

Q3. What are your feelings when learning English listening on your own?

Q4. What are your feelings when learning English listening with an advance organizer? (Only for EG1)

Q5. Are graphic forms, pictures and charts helpful to your English listening? If so, in what ways? If not, why not? (Only for EG1)

Q6. Do you like learning English listening in groups or on your own? Why?

Q7. Do you think that listening materials and activities on the listening website can help you to improve your learner autonomy? Why?

Q8. What else would you like to say about learning to listening English?

APPENDIX H

A Semi-Structured Interview on Students' Perceptions of English Listening Learning

(Chinese Version)

关于学生英语听力学习的半结构式访谈问卷

第一部分 个人信息

性别	☐ 男	☐ 女		
年龄	☐ 16 岁以下	☐ 16-19 岁	☐ 19 岁以上	
年级	☐ 高一	☐ 高二	☐ 高三	
民族	☐ 汉族	☐ 布依族	☐ 苗族	☐其他
学习时间	☐ 0-3 年	☐ 4- 7 年	☐ 7 年以上	
每周学习听力时间	☐ 5 小时	☐ 10 小时	☐ 15 小时	

第二部分 访谈内容

问题 1. 这个网站上所提供的**听力材料和活**动有助于你英语听力学习吗? **如果是, 是在哪些方面**? 如果不是, 为什么?

问题 2. **基于互**联**网上提供的自己学**习**的听力材料和活动与传统课堂的听力材料与活动相比, 你更喜**欢哪一种? 为什么?

问题 3. **当你独自使用**这些材料和活动学习英语听力的感受是什么?

问题 4. **当你使用先行**组织者学习英语听力感受是什么? (仅用于 EG1)

问题 5. 图形表格，图片等方式的使用是否有助于**你的英语听力的提高？ 如果是**这样，以什么方式? **如果没有**，为什**么？** （仅适用于 EG1）

问题 6. **你喜**欢小组学习听力还是喜欢自己学习听力? 为什么?

问题 7. **你**认**为这个网站上的听力材料和活**动能提高你的自主学习能力吗? 为什么?

问题 8. 对于**英语听力学**习, 你还有什么其它补充建议?

APPENDIX I

IOC Analysis for The Semi- Structured Interview on Students' Perceptions of English Listening Learning

Items	Experts			Result of analysis
	1	**2**	**3**	
Q1	+1	0	+1	×
Q2	+1	+1	+1	√
Q3	+1	+1	+1	√
Q4	+1	+1	+1	√
Q5	+1	+1	+1	√
Q6	+1	+1	+1	√
Q7	0	+1	+1	×
Q8	+1	+1	0	×
Total	7	7	7	21

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective 3. 0 = uncertain about this item

Result of IOC:

(IOC =□R /N)

Item number: 8

R =7+7+7=21 (Scores given by experts)

N = 3 (Number of experts)

IOC = 21/3=7

IOC index: $7/8 \times 100\% = 87.5\%$

The table above shows that the analysis result of IOC is 7, and IOC index is 87.5%, which is higher than 80%. Therefore, the items are suitable for adoption a trial questionnaire.

APPENDIX J

A Semi-Structured Interview on The Teacher's Perceptions of English Listening Learning

Dear Mr/Ms,

This interview is to investigate your opinions on English listening learning. There is no right or wrong answer. Please free to talk about what you think about the invention of this experiment. The interview content will be kept confidential. Thank you for your cooperation.

Interview questions:

1. Is intervention of learner autonomy via the listening website useful to your teaching of English listening? If yes, in what ways? If not, why not?

2. Do you believe that these English materials and activities are helpful for your students' independent learning abilities? Why?

3. Do you think that an advance organizer can help develop students' learning ability of English listening comprehension?

4. Comparing the traditional approach to the intervention of learner autonomy based on the listening website, which one do you prefer? Why?

5. What else would you like to talk about the intervention of this experiment?

APPENDIX K

English Listening Comprehension Test (Pretest) Paper

(30 minutes)

Section A (15 points)

Directions: In Section A, you will hear five short conversations between two speakers. At the end of each conversation, a question will be asked about what was said. The conversations and the questions will be spoken only once. After you hear a conversation and the question about it, read the three possible answers on your paper, and decide which one is the best answer to the question you have heard.

1. What time is it now?

    A. 9:10.   B. 9:50.   C. 10:00.

2. What does the woman think of the weather?

    A. It's nice.   B. It's warm.   C. It's cold.

3. What will the man do?

    A. Attend a meeting.   B. Give a lecture.   C. Leave his office.

4. What is the woman's opinion about the course?

    A. Too hard.   B. Worth taking.   C. Very easy.

5. What does the woman want the man to do?

    A. Speak louder.   B. Apologize to her. C. Turn off the radio.

Section B (85 points)

Directions: In Section B, you will hear five short passages, and you will be asked questions on each of the passages. The passages will be read twice, but the questions will be spoken only once. When you hear a question, read the three possible answers on your paper and decide which one would be the best answer to the question you have heard.

Part 1

6. How long did Michael stay in China?

    A. Five days.   B. One week.   C. Two weeks.

7. Where did Michael go last year?

    A. Russia.   B. Norway.   C. India.

Part 2

8. What food does Sally like?

    A. Chicken.   B. Fish.   C. Eggs.

9. What are the speakers going to do?

    A. Cook dinner.   B. Go shopping.   C. Order dishes.

Part 3

10. Where are the speakers?

    A. In a hospital.   B. In the office.   C. At home.

11. When is the report due?

    A. Thursday.   B. Friday.   C. Next Monday.

12. What does George suggest Stephanie do with the report?

    A. Improve it.   B. Hand it in later.   C. Leave it with him.

Part 4

13. What is the probable relationship between the speakers?

    A. Salesperson and customer.   B. Homeowner and cleaner.

    C. Husband and wife.

14. What kind of apartment do the speakers prefer?

    A. One with two bedrooms.   B. One without furniture.

C. One near a market.

15. How much rent should one pay for the one-bedroom apartment?

    A. $350.   B. $400.   C. $415.

16. Where is the apartment the speakers would like to see?

    A. On Lake Street.   B. On Market Street.   C. On South Street.

Part 5

17. What percentage of the world's tea exports go to Britain?

    A. Almost 15%.   B. About 30%.   C. Over 40%.

18. Why do tea tasters taste tea with milk?

    A. Most British people drink tea that way.

    B. Tea tastes much better with milk.

    C. Tea with milk is healthy.

19. Who suggests a price for each tea?

    A. Tea tasters.   B. Tea exporters.   C. Tea companies.

20. What is the speaker talking about?

    A. The life of tea tasters.

    B. Afternoon tea in Britain.

    C. The London Tea Trade Centre.

APPENDIX L

English Listening Comprehension Test (Posttest) Paper

(30 minutes)

Section A (15 points**)**

Directions: In Section A, you will hear five short conversations between two speakers. At the end of each conversation, a question will be asked about what was said. The conversations and the questions will be spoken only once. After you hear a conversation and the question about it, read the three possible answers on your paper, and decide which one is the best answer to the question you have heard.

1. What will James do tomorrow?

    A. Watch a TV program.   B. Give a talk.   C. Write a report.

2. What can we say about the woman?

    A. She's generous.   B. She's curious.   C. She's helpful.

3. When does the train leave?

    A. At 6:30.   B. At 8:30.   C. At 10:30.

4. How does the woman go to work?

    A. By car.   B. On foot.   C. By bike.

5. What is the probable relationship between the speakers?

    A. Classmates.   B. Teacher and student. C. Doctor and patient.

Section B (85 points**)**

Part 1

6. What does the woman regret?

    A. Giving up her research.   B. Dropping out of college.

    C. Changing her major.

7. What is the woman interested in studying now?

    A. Ecology.   B. Education.   C. Chemistry.

Part 2

8. What is the man?

    A. A hotel manager.   B. A tour guide   C. A taxi driver.

9. What is the man doing for the woman?

    A. Looking for some local foods.

    B. Showing her around the seaside.

    C. Offering information about a hotel.

Part 3

10. Where does the conversation probably take place?

    A. In an office.   B. At home.   C. At a restaurant.

11. What will the speakers do tomorrow evening?

    A. Go to a concert.   B. Visit a friend.   C. Work extra hours.

12. Who is Alice going to call?

    A. Mike.   B. Joan.   C. Catherine.

Part 4

13. Why does the woman meet the man?

    A. To look at an apartment.   B. To deliver some furniture.

    C. To have a meal together.

14. What does the woman like about the carpet?

    A. Its color.   B. Its design.   C. Its quality.

15. What does the man say about the kitchen?

    A. It's a good size.   B. It's newly painted.   C. It's adequately equipped.

16. What will the woman most probably do next?

    A. Go downtown.   B. Talk with her friend.   C. Make payment.

Part 5

17. Who is the speaker probably talking to?

   A. Movie fans.   B. News reporters.   C. College students.

18. When did the speaker take English classes?

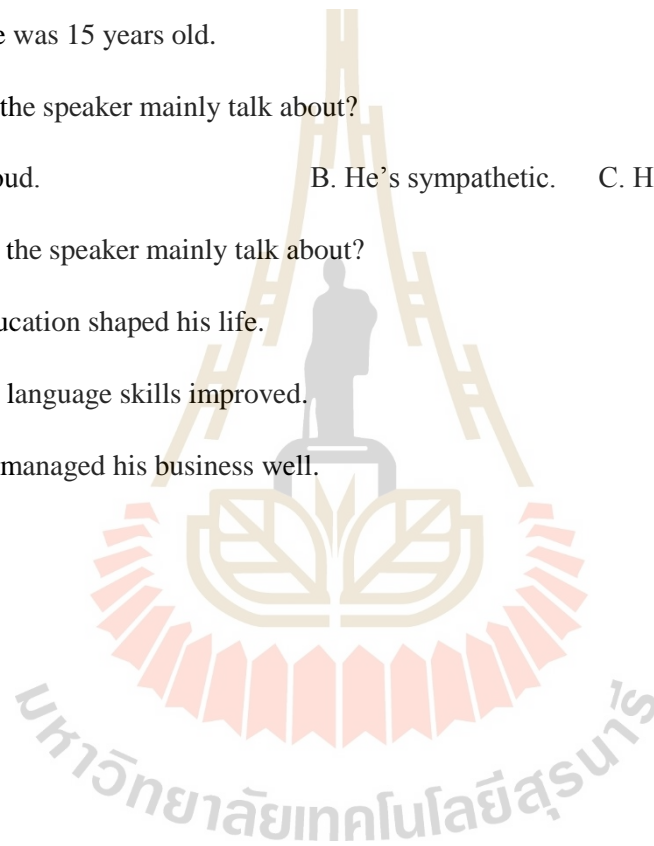   A. Before he left his hometown,

   B. After he came to America.

   C. When he was 15 years old.

19. How does the speaker mainly talk about?

   A. He's proud.   B. He's sympathetic.   C. He's grateful.

20. What does the speaker mainly talk about?

   A. How education shaped his life.

   B. How his language skills improved.

   C. How he managed his business well.

APPENDIX M

The Informed Consent Form

The research project in which you will participate is to explore "English Listening" course for developing Chinese high school students' listening comprehension based on learner autonomy via the listening website. It will be conducted for a period of 12 weeks during the second term of the Academic Year 2019-2020. Your role in this study is to participate in the course of English listening. The pre-test and post-test of listening will be prepared to examine whether your English listening ability will be improved through this intervention. During the course, some parts of your talk will be recorded. All information that you provide will be kept strictly confidential. I will promise not use your real name during my report. Once this study is completed, I will provide a piece of summary of my findings and hope that it is useful for your English study. If you have any questions about this study project, please feel free to contact me. If you agree to participate in this project, please sign below.

Signed Participant: Date:

Signed Researcher: Date:

APPENDIX N

The Informed Consent Form (Chinese Version)

知情同意书

您将参与的这项实验研究在 2019-2020 学年的第二学期进行，为期 12 周。目的是探究中国高中学生通过基于个人网站提供的"英语听力"课程, 学生听力水平的提高情况。您在这项研究中的角色是学习"英语听力"这门课程。研究者将对您进行听力前、后测，以了解为期 12 周的学习，您的英语听力水平是否有提高。在课程学习中，您的部分参与对话将被录音。研究者对您所提供的所有信息资料将会严格保密。在撰写研究报告中不会出现您的名字。一旦本项研究完成, 将提供给您一份简要的研究结果报告, 并希望对您的英语学习有所帮助。如果您对本项实验研究有任何疑问，请向我提出。如果您同意参与本项研究，请在下面签名。

参与者签名: 日期:

研究人员签名: 日期:

APPENDIX O

Criterion for Determining a Representative Interview Sample
(AMHSA, 2010)

Participants	Minimum Interviews	Participants	Minimum Interviews	Participants	Minimum Interviews
0-9	ALL	86-99	22	339-369	53
10-12	9	100-149	24	370-475	58
13-17	11	150-199	26	476-550	65
18-24	13	200-220	30	551-600	70
25-30	15	221-240	35	601-700	80
31-44	17	241-299	37	701-800	86
45-64	19	300-320	42	801-900	90
65-85	21	321-338	47	901-1000	100

APPENDIX P

The Questionnaire on Students' Opinions of Use of Materials and Activities of English Listening Learning (EG1 & EG2)

Part I Personal Information

Gender	☐ Male	☐ Female		
Age	☐ Below 16	☐ 16-19	☐ 19 & up	
Level	☐ Year One	☐ Year Two	☐ Year Three	
Nationality	☐ Han	☐ Buyi	☐ Miao	☐ Other
Year of EFL study	☐ 0-3 years	☐ 3-7 years	☐ 7 years & up	
Time spent per week	☐ 5 hours	☐ 10 hours	☐ 15 hours	

Part II Students' perceptions of learner autonomy

Directions: This questionnaire is designed to investigate your state of the English listening materials and activities during the intervention. Please feel free to read each statement carefully and tick (√) the number, which suit to your opinions. The number 1-5 represents: 1 = strongly disagree; 2 = disagree; 3 = undecided; 4 agree; 5 = strongly agree. Your response to the questionnaire will be kept confidential.

Thank you for your cooperation.

S.N.	Perceptions on the listening materials and activities	Circle the number				
1	I like the English listening materials and listening activities that I used here.	1	2	3	4	5
2	I feel confident when using these materials and activities.	1	2	3	4	5
3	My English listening ability improved as a result of using these materials and activities.	1	2	3	4	5
4	These listening materials and activities are very interesting.	1	2	3	4	5
5	I prefer these listening materials and activities rather than those provided in the English textbook.	1	2	3	4	5
6	The interpretation of these listening materials and activities is very detailed.	1	2	3	4	5
7	These listening materials and activities are very easy for me.	1	2	3	4	5
8	These listening materials and activities are different from those I used before.	1	2	3	4	5
9	These listening materials and activities are very helpful to me.	1	2	3	4	5
10	I will be able to use these listening materials and activities for English listening study in future.	1	2	3	4	5

APPENDIX Q

The Questionnaire on Students' Perceptions of Use of Materials and Activities of English Listening Learning (EG1 & EG2) (Chinese Version)

学生关于实验中所使用的听力材料和听力活动的观点调查问卷

第一部分 个人信息

性别	☐ 男	☐ 女		
年龄	☐ 16 岁以下	☐ 16-19 岁	☐ 19 岁以上	
年级	☐ 高一	☐ 高二	☐ 高三	
民族	☐ 汉族	☐ 布依族	☐ 苗族	☐ 其他
学习时间	☐ 0-3 年	☐ 4- 7 年	☐ 7 年以上	
每周学习听力时间	☐ 5 小时	☐ 10 小时	☐ 15 小时	

第二部分 问卷内容

说明: 本问卷调查旨在全面了解高中生听力材料和听力活动的使用情况. 请认真阅读问卷的题项并在代表你观点的题项前打勾(√)数字 1 到 5 分别代表以下答案: 1= 非常不同意; 2= 不同意; 3 = 不确定; 4 = 同意; 5 = 非常同意. 调查问卷中您的回复将予以保密。

谢谢合作。

	学生观点描述	选择最佳答案				
1	我喜欢所使用的听力材料和听力活动.	1	2	3	4	5
2	当使用这些听力材料和活动时, 我感到很自信.	1	2	3	4	5
3	这些听力材料和活动可以提高我的听力水平.	1	2	3	4	5
4	这些听力材料和活动很丰富有趣.	1	2	3	4	5
5	相比课本提供的听力材料和活动,我更喜欢这些材料.	1	2	3	4	5
6	这些听力材料和活动中的解释很详细.	1	2	3	4	5
7	这些听力材料和活动对我来说很简单.	1	2	3	4	5
8	这些听力材料和活动和我之前使用的不同.	1	2	3	4	5
9	这些听力材料和活动对我来说很有帮助.	1	2	3	4	5
10	我将会使用这些材料和活动在我之后的听力学习中.	1	2	3	4	5

APPENDIX R

IOC Analysis for Students' Perceptions of Use of Materials and Activities of English Listening Learning (EG1 & EG2)

Items	Experts			Result of analysis
	1	**2**	**3**	
Q1	+1	+1	+1	√
Q2	+1	+1	+1	√
Q3	+1	+1	+1	√
Q4	+1	+1	+1	√
Q5	+1	+1	+1	√
Q6	+1	0	+1	×
Q7	0	+1	0	×
Q8	+1	+1	0	×
Q9	+1	+1	+1	√
Q10	+1	+1	+1	√
Total	9	9	8	26

Notes: 1. +1 = the item is congruent with the objective

2. -1 = the item is not congruent with the objective 3. 0 = uncertain about this item

Result of IOC:

(IOC =□R /N)

Item number: 10

R =9+9+8=26 (Scores given by experts)

N = 3 (Number of experts)

IOC = 26/3=8.67

IOC index: 8.67/10×100% = 86.7%

The table above shows that the analysis result of IOC is 8.67, and IOC index is 86.7%, which is higher than 80%. Therefore, the items are suitable for adoption a trial questionnaire.

CURRICULUM VITAE

Lele Guo was born in March 1993, Inner Mongolia, China. She graduated from Anshun Normal University in 2017 with a Bachelor of Arts degree in English. From 2017 to 2021，she pursued her M.A. in English language studies in the School of Foreign Languages, Institute of Social Technology, Suranaree University of Technology, Thailand. Her research interests mainly include English as a foreign language teaching and learning, learner autonomy, technology-enhanced language teaching and learning, and lifelong learning, etc.